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(54) Title: T-TYPE VOLTAGE-GATED CALCIUM CI	HANNE	LS AND METHOD OF USING SAME	
(57) Abstract			
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T-TYPE VOLTAGE-GATED CALCIUM CHANNELS AND METHOD OF USING SAME

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This invention was made with Government support under Grant Number HL58728 awarded by the National Heart, Lung, and Blood Institute of the National Institutes of Health. The United States Government may have certain rights in this invention.

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TECHNICAL FIELD OF THE INVENTION

The present invention relates to cloned T-type calcium channels.

BACKGROUND OF THE INVENTION

13 Biological membranes are themselves generally impermeable to ionic species. Thus, ions enter cells through regulated pores formed from membrane-associated proteins. Most of these regulated pores are voltage-dependent and are thus able to transduce changes in the transmembrane potential into ion flux. Voltage-gated ion channels form a "superfamily" of related proteins (cf. Jan et al., Nature, 345, 672 20 (1990)). Peculiar to this genus is a high degree of conservation in molecular structure. Generally, voltage-gated channels are membrane bound glycolsylated proteins formed of many subunits. Large α subunits form a pore in the membrane that is selective for a given ionic species. Each α subunit contains four domains (I, II, III, and IV). Each channel domain has six putative transmembrane helical segments $(S_1 - S_6)$. In general, 25 the segments within each domain are similar but not identical. Aside from overall structural conservation, certain charged residues within the domains are highly conserved among voltage-gated ion channels (Jan et al., supra; Stühmer et al., Nature. 339, 597-603 (1989)).

Differences in charged residues between groups of voltage-gated ion channels confer properties unique to each subgroup, such as ion selectivity. For example, most voltage gated ion channels are selective for either sodium, potassium or calcium. Known calcium channels require a ring of negative charge provided by glutamate residues found at similar locations in each of the domains (Yang et al., *Nature*, 366, 158-61 (1993)).

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Voltage-gated channels are often classified on the basis of their electrophysiology. The resting membrane potential of most animal cells is between about -70 mV and -80 mV. When the membrane becomes depolarized (moved towards 0 mV), various membrane channels become activated (they are said to

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"open"). Thus, one basis for classifying membrane channels is the membrane potential necessary to activate (or "gate") them (voltage dependency). For example, "T-type" calcium channels are activated at a lower voltage than L- or N-type channels (Nowycky et al., *Nature*, 316, 440-43 (1985)). Other physiological properties are the activation kinetics, inactivation kinetics, tail current (deactivation kinetics), and single channel conductance. Thus, in comparison to other calcium currents, T-type calcium current is characteristically short (Chen et al., J. Gen. Physiol., 96, 603-30 (1990)), and it exhibits characteristically slow activation kinetics near threshold, fast inactivation kinetics, and slow tail current (Randall et al., Neuropharmacol., 63, 879-93 (1997); Carbone et al., Nature, 310, 501-02 (1984); Nilius et al., Nature, 316, 443-46 (1985)).

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Calcium currents have been implicated in many neurological and muscular functions. For example, T-type calcium current is associated with cardiac pacemaker activity, pain transmission in the central nervous system, and in other physiological functions. Defects in T-type calcium current have been implicated in cardiac arrhythmia, hypertension, and epilepsy. Given their potential clinical value, the pharmacological properties of calcium channels have been the subject of extensive study. Most such studies have involved L-type channels because, unlike T-type channels, L-type calcium channels are readily purified from cell extracts. For example, L-type calcium channels have been purified using dihydropyridine drugs (e.g., nifedipine) which can bind with sufficiently high affinity to serve as a ligand for purifying L-type calcium channels. Such purified and cloned L-type calcium channels have been used to develop assays for drugs affecting L-type calcium channels (see, e.g., U.S. Patents 5,429,921 and 5,386,025).

While many electrophysiological characteristics of T-type calcium currents are known, the lack of isolated T-type channels has stalled research into the pharmacology and biophysics underlying the T-type calcium current, at least in comparison with other calcium channels. Indeed, while it is generally assumed that voltage-sensitive ion channels are responsible for the current, no such channel protein, nor any nucleic acid encoding such a protein, has been isolated. In view of the foregoing problems, there exists a need for an isolated T-type calcium channel and a nucleic acid encoding a T-type calcium channel.

BRIEF SUMMARY OF THE INVENTION

The present invention provides an isolated or substantially purified nucleic acid encoding a protein comprising at least one domain of a T-type calcium channel and cells and cell lines expressing such nucleic acids. The present invention also provides an isolated or substantially purified T-type calcium channel and an isolated or

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substantially purified antibody molecule recognizing an epitope on a T-type calcium channel protein.

The present invention is useful for exploring the electrophysiology and pharmacology of the T-type calcium current. Such knowledge can lead to the development of drugs for potentiating or attenuating T-type calcium channels. Thus, the present invention provides an assay for identifying potential drugs affecting T-type calcium channels by exposing cells expressing a T-type calcium channel to a putative drug and then measuring the calcium flux in response to a change in membrane potential. The identification of drugs affecting T-type calcium channels will facilitate even greater understanding of the biophysics of these proteins. Furthermore, some such drugs could have potential clinical applications.

The invention can best be understood with reference to the accompanying drawings and in the following detailed description of the preferred embodiments.

BRIEF DESCRIPTION OF THE DRAWINGS

Figures 1A-1E compare the complete amino acid sequences of three types of T-type calcium channels (α 1G (or Ca,T.1), α 1H (or Ca,T.2), and α 1I (or Ca,T.3)), indicating conserved functional domains.

Figures 2A-2D are graphic representations of the current-voltage relationships of three cloned T-type calcium channels (Figures 2A, 2B, and 2C) and a cloned R-type calcium channel (Figure 2D).

Figure 3A is a graphic representation of the average current-voltage curve for cloned T-type calcium channels (α1G, triangles, α1H, inverted triangles, α1L circles), and a cloned R-type calcium channel (filled squares). Figure 3B compares the normalized conductance of a cloned T-type calcium channel at three different concentrations of BaCl₂.

Figure 4 depicts average kinetics of the tail current as a function of repolarization potential for α 1G (triangles), α 1H (inverted triangles), α 1I (circles), and a cloned R-type calcium channel (filled squares).

Figures 5A and 5B graphically present data concerning the use of a cloned T-type calcium channel to detect drugs affecting the channel. Figure 6A depicts the effect of 100 µM on current-voltage relationships with a single dosage of miberfradil. Figure 6B illustrates the effect on T-type channel conductance of various doses of miberfradil.

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DESCRIPTION OF THE PREFERRED EMBODIMENTS

The present invention provides an isolated or substantially purified nucleic acid encoding a protein comprising at least one domain of a T-type calcium channel α

subunit. The nucleic acid can be of any type, and it can include other elements aside from a sequence encoding a T-type calcium channel domain or domains. For example, where the nucleic acid comprises RNA, it can also include regulatory sequences suitable to permit translation of the RNA. Thus, an RNA nucleic acid of the present invention preferably has at least one ribosome entry site, and preferably has a polyadenosine tail for stabilizing the RNA in the cellular environment. Similarly, DNA nucleic acids of the present invention can have regulatory elements for promoting the transcription of sequence encoding the T-type calcium channel into an RNA such as that described above. For example, a DNA nucleic acid of the present invention can have a promoter and/or an enhancer sequence. While the nucleic acid can be any type of nucleic acid, the nucleic acid preferably comprises a cDNA. A cDNA nucleic acid is preferred over other nucleic acids to permit the nucleic acid to be readily cloned, sequenced, and expressed in a wide variety of cells.

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The choice of promoter and/or an enhancer will largely depend on the milieu in which the nucleic acid is to be expressed. Thus, for expression in bacterial cells, the regulatory elements are bacterial promoters. Similarly, for expression in mammalian cells, the regulatory elements are able to effect expression in mammalian cells. While many such regulatory elements are known in the art, examples include prokaryotic promoters and viral promoters (e.g., retroviral ITRs, LTRs, immediate early viral promoters (IEp), such as herpesvirus IEp (e.g., ICP4-IEp and ICP0-IEp), cytomegalovirus (CMV) IEp, and other viral promoters, such as Rous Sarcoma Virus (RSV) promoters, and Murine Leukemia Virus (MLV) promoters). Other suitable promoters are eukaryotic promoters, such as enhancers (e.g., the rabbit \$\theta\$-globin regulatory elements), constitutively active promoters (e.g., the β -actin promoter, etc.). signal specific promoters (e.g., inducible promoters such as a promoter responsive to RU486, etc.), and tissue-specific promoters (e.g., those active in epidermal tissue, dermal tissue, tissue of the digestive organs (e.g., cells of the esophagus, stomach. intestines, colon, etc., or their related glands), smooth muscles, such as vascular smooth muscles, cardiac muscles, skeletal muscles, lung tissue, hepatocytes, lymphocytes, endothelial cells, sclerocytes, kidney cells, glandular cells (e.g., those in the thymus, ovaries, testicles, pancreas, adrenals, pituitary, etc.), tumor cells, cells in connective tissue, cells in the central nervous system (e.g., neurons, neuralgia, etc.). cells in the peripheral nervous system, and other cells of interest).

The isolated or substantially purified nucleic acid of the present invention encodes all or part of a T-type calcium channel α subunit. As used herein, a "calcium channel" includes a protein structure for facilitating the flux of calcium ions across a biological membrane into which the calcium channel is inserted. As used herein, a "T-type channel" is a type of voltage-gated ion channel that facilitates the flux of ions

when the membrane potential of a biological membrane into which it is inserted experiences a slight depolarization. Thus, a T-type calcium channel can begin to gate from about -60 mV to about -30 mV (i.e., about -45 mV to about -35 mV) in about 10 mM Ba²⁺. Additionally, T-type channels of the present invention exhibit a slow deactivation (tail current) following depolarization. Thus, a T-type calcium channel can exhibit a tail current that decays exponentially with a tau value from about 1 ms to about 10 ms (e.g., from about 4 ms to about 7 ms, such as about 6 ms) following repolarization to a membrane potential from about -80 mV to about -60 mV in a solution with a Ba²⁺ concentration of from about 10 mM to about 40 mM. Another defining characteristic of T-type calcium channels is that they exhibit small single channel conductance. Thus, for example, a T-type channel exhibits a single channel conductance of from about 4 pS to about 12 pS (e.g., from about 6 pS to about 10 pS), and typically from about 7 pS to about 9 pS in a solution with a Ba²⁺ concentration of about 0.1 M.

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The isolated or substantially purified nucleic acid of the present invention encodes all or part of any T-type calcium channel having at least one of the aforementioned electrophysiological properties when properly assembled within a cellular membrane. The general structure of calcium channels is summarized above and is otherwise known in the art. Thus, for example, the nucleic acid can encode one of the four functional domains mentioned above. As used herein, a domain of a Ttype calcium channel is any protein structure able to associate with three other domains to form a tetrameric body functioning as a T-type calcium channel. While the native T-type calcium channel structure includes all four domains in a single polypeptide (indicated in Figures 1A-1E), a domain can exist as a polypeptide species separate from those containing the other domains. Such separate domains are able to associate within the plasma membrane to form a functional channel. Alternatively, where a plurality of domains are linked within a common polypeptide, the linkage can deviate substantially from the native linkage. Thus, for example, the domains can be linked by polypeptide sequences other than those sequences linking the domains in the native protein (e.g., non-native polyglutamate linkages). Indeed, the domains themselves can include non-native linkages between membrane-spanning elements within the domains. Aside from these modifications, the nucleic acid can encode a chimeric calcium channel domain (or an entire channel) comprising a portion of a Ttype calcium channel and a portion derived from another calcium channel (or other channel) protein. For example, the chimera can include portions of domains from Ttype channels responsible for low voltage gating and portions of domains from other calcium channels responsible for slow inactivation. Such a protein exhibiting T-type gating but longer inactivation kinetics would facilitate pharmacological research.

As mentioned, nucleic acids of the present invention can encode an entire Ttype channel (i.e., a T-type channel protein comprising four functional domains). It has been discovered that at least three genes encoding T-type calcium channels exist in humans and rats (i.e., \alpha IG (or Ca, T.1), \alpha IH (or Ca, T.2), and \alpha II (or Ca, T.3)), and alternate splicing of these isoforms exist. Examples of the amino acid sequences of full-length T-type channels, and the sequences of suitable coding nucleic acids are set forth at SEQ ID NOs:1-8 (α1G sequences), SEQ IS NOs:9-10 (α1H sequences), and SEQ ID NOs: 11-12 (α 11 sequences). However, the invention is not limited to these exemplary sequences. Indeed, as mentioned, an amino acid sequence of a T-type calcium channel can vary from those listed, and it is within the state of the art to change a nucleotide sequence encoding a T-type channel to introduce mutations into the protein. Indeed, for conducting electrophysiological assays, it may be desirable to introduce mutations into such a protein. For example, mutations comprising insertions or deletions can be introduced on either the amino- or carboxy-terminus of the protein, or such mutations can be intrasequence insertions or deletions. Where the electrophysiological properties of the calcium channel are to be conserved, such mutations preferably are in regions other than the membrane spanning domains. However, in some applications (e.g., to decrease inactivation kinetics), the changes can be within the membrane-spanning regions. Moreover, as mentioned above, the sequence can form a protein having only one functional domain of a T-type calcium channel. Additionally, the sequence can also form a chimeric protein or domain, such as those described above.

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Aside from insertions and deletion mutations of native T-type calcium channel sequences, a T-type calcium channel can include substitutions of amino acid residues, e.g., for those indicated in SEO ID NOs:1-12. Preferably, and especially where such a substitution is within a membrane spanning region, the substitution is conservative. Thus, within membrane spanning domains, positively-charged residues (H, K, and R) preferably are only substituted with positively-charged residues; negatively-charged residues (D and E) preferably are only substituted with negatively-charged residues; neutral polar residues (C. G. N. Q. S. T. and Y) preferably are only substituted with neutral polar residues; and neutral non-polar residues (A, F, I, L, M, P, V, and W) preferably are only substituted with neutral non-polar residues. Preferably, any amino-acid substitution within the membrane-spanning regions does not alter this conservation. Most preferably, any substitution, deletion, or insertion does not alter the IVS4 domain. In each of the exemplary T-type calcium channel \(\alpha \) subunit sequences, the putative IVS4 region comprises SEQ ID NO:13. Given the strong sequence conservation among families of voltage-gated ion channels, it is likely that this sequence or a derivative sequence, will be present in T-type channels. Thus, the

present invention provides any T-type calcium channel (or a nucleic acid encoding such a T-type calcium channel) comprising SEQ ID NO:13 or a sequence derived from SEQ ID NO:13 having conservative amino acid substitutions, as described above.

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The nucleic acid of the present invention encoding all or a part of a T-type calcium channel can be isolated via any suitable method. For example, prior to the present invention, one of skill in the art could design a probe based on the sequence of known, non-T-type, calcium channels and use such probe to screen a genetic library. If such a screen were to identify a putative calcium channel, the researcher could then attempt to clone the entire nucleic acid to characterize it. Similarly, prior to the present invention, to isolate a nucleic acid encoding a T-type calcium channel, one of skill in the art could consult publicly available databases containing DNA sequences (e.g., Genbank) to locate nucleic or amino acid sequences representing a portion of a T-type calcium channel protein or nucleic acid. However, such databases contain no sequence for a full-length T-type calcium channel or identify any sequence as a T-type channel. Such methods assume that T-type calcium channels share sufficient sequence identity with known calcium channel nucleic acids to cross-hybridize, an assumption not supported by any published report. Moreover, prior to the present invention, no partial sequence in such databases was identified as corresponding to a T-type calcium channel. Thus, prior to the present invention, the presence of partial sequences in the public DNA databases could facilitate the isolation of T-type calcium channels only with the exercise of a considerable degree of speculation on the part of the researcher.

By providing several sequences pertaining to T-type calcium channels and a comparison presenting conserved regions and domains, the present invention greatly facilitates the isolation of other nucleic acids encoding T-type calcium channels (or derivatives thereof) with much less experimentation. Thus, while any of the methods discussed above can be employed to isolate other members of this genus, preferably, a nucleic acid encoding a T-type calcium channel is isolated by probing a genetic library using a probe that hybridizes to a DNA encoding a peptide sequence contained in (or similar to) a known T-type calcium channel (e.g., SEQ ID NOs:1-12). To facilitate the isolation of a T-type calcium channel, the present invention provides an isolated polynucleotide hybridizing to a portion of the nucleic acid of the present invention encoding a T-type calcium channel (or a portion thereof). Thus, for example, the present invention includes an isolated polynucleotide hybridizing to SEQ ID NO:1-12. The isolated polynucleotide can hybridize to all or any portion of the sequence encoding the T-type calcium channel.

To isolate such a polynucleotide, any portion of a sequence encoding a T-type calcium channel can be employed as a probe to screen a genetic fibrary, and such screening can be accomplished by standard techniques known in the art. While the probe can hybridize to any portion of such a DNA, preferably the probe is designed to hybridize to a DNA encoding a polypeptide sequence that is highly conserved among T-type calcium channels but is less conserved between the genus of T-type calcium channels and other proteins. Such peptide sequences are readily apparent from the sequence comparison set forth in Figures 1A-1E. Generally, the specificity of hybridization in a genetic screen varies depending on the length of the probe and the stringency (e.g., temperature, salt and detergent concentration, etc.) of hybridization. Stringency of hybridization is broadly classified as "high," "moderate," or "low," and the parameters of these terms are well recognized in the art (see, e.g., Sambrook et al., "Molecular Cloning, a Laboratory Manual," Cold Spring Harbor Press, 1989). The isolated polynucleotide hybridizing to a portion of the nucleic acid encoding a T-type calcium channel can hybridize under any desired stringency conditions. However, for identifying other T-type channels, preferably, the hybridization occurs under moderate stringency, and most preferably under high stringency.

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Of course, the isolated or substantially purified polynocleotide can itself be employed as a probe to screen a library as described to isolate a second nucleic acid. In such a screen, one of the polynocleotides will be complementary to a portion of the sequence encoding the T-type calcium channel, and the other isolated nucleic acid will be "sense." Preferably, one of the two isolated polynocleotides (the "sense" strand) itself encodes a T-type calcium channel, or at least one domain thereof. Such a sequence can be cloned to be operably linked to suitable regulatory elements, as described, to produce a T-type calcium channel. Thus, aside from using the nucleic acid of the present invention to produce a T-type calcium channel, the nucleic acids of the present invention are also useful for isolating other sequences encoding T-type calcium channels, or derivatives thereof.

However isolated, the isolated or substantially purified nucleic acid of the present invention is useful, in part, for producing all or a portion of a T-type calcium channel. Thus, the nucleic acid can be introduced into a suitable milieu for driving its expression. Because T-type channels are transmembrane proteins, preferably such a milieu is a living cell. However, it should be understood that the nucleic acid can also be expressed *in vitro* under conditions, such as those known in the art, suitable for *in vitro* transcription and translation. However produced, the present invention includes any protein, such as a recombinant protein or an isolated or substantially purified protein, including all or a portion of a T-type calcium channel or a protein derived from a T-type calcium channel.

For expression in a living cell, the nucleic acid must be introduced into the cell. As nucleic acids are generally introduced into cells as part of genetic vectors, the

present invention provides a vector having a T-type calcium channel nucleic acid of the type described above. Any type of vector suitable for introducing the nucleic acid

into a host cell is within the context of the present invention. Examples of such

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vectors include naked DNA and RNA vectors (such as oligonucleotides, plasmids,

capped cRNA, etc.), viral vectors such as adeno-associated viral vectors (Berns et al.,

Annals of the New York Academy of Sciences, 772, 95-104 (1995)), adenoviral vectors (Bain et al., Gene Therapy, 1, S68 (1994)), herpesvirus vectors (Fink et al., Ann. Rev.

Neurosci., 19, 265-87 (1996)), packaged amplicons (Federoff et al., Proc. Nat. Acad. Sci. USA, 89, 1636-40 (1992)), pappiloma virus vectors, picornavirus vectors.

polyoma virus vectors, retroviral vectors, SV40 viral vectors, vaccinia virus vectors, and other vectors. Once a given type of vector is selected, its genome must be manipulated for use as a background vector, after which it must be engineered to

incorporate exogenous polynucleotides. Such manipulations are known in the art.

The vectors of the present invention are useful for introducing a nucleic acid encoding all or a portion of a T-type calcium channel into a host cell. Thus, the present invention provides a cell into which the vector of the present invention has been introduced. The host cell can be any cell suitable for expressing the nucleic acid (e.g., bacteria, insect cells, mammalian cells, etc.). The host cell can thus be *in vitro* or *in vivo*. Preferably the cells do not exhibit native T-type calcium current. A preferred cell type is HEK-293 cells because they contain genetic elements that facilitate the expression of transgenes from a variety of expression vectors. For facilitating electrophysiological recordings, oocytes (e.g., *Xenopus* oocytes) are preferred, as they are large and readily handled.

The vector can be introduced into the cell in any manner suitable for the cell type and vector employed. In one embodiment, the vector can be used to prepare an RNA transcript *in vitro* (e.g., a capped cRNA) which is then introduced into the host cell by standard methods (such as injection). Such techniques are preferred when the host cells do not actively transcribe DNA (such as oocytes). In other embodiments, a DNA vector is introduced into the cell such that it is transcribed within the cell. For example, the vector can be introduced into the cell such that it forms an extrachromosomal segment of genetic material in the cell, as is the case with many types of viral vectors. Alternatively, the vector can introduce the nucleic acid into the chromosomal DNA of the host cell.

Preferably, a cell into which the nucleic acid is introduced is also able to express the nucleic acid to produce the \alpha subunit protein. The expression of the nucleic acid can be detected by probing the cell for the presence of T-type calcium

channel mRNA, such as via Northern hybridization analysis, in situ hybridization, etc. More preferably, however, the cell is able to express the nucleic acid to produce the protein including all or a portion of a T-type calcium channel. In such cells, expression of the nucleic acid is confirmed by detecting the protein, for example, by probing cellular extracts with an antibody recognizing the protein (e.g., on a Western blot, etc.).

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In the membrane of the cell producing the protein, the expressed protein contributes to the formation of a functional calcium channel. Where the protein encodes an entire a subunit, the full protein will possess some or all of the electrophysiological properties of T-type calcium channels described above. Where the protein encodes less than an entire channel \alpha subunit (e.g., a domain), the protein will aggregate with other constituent domains in the membrane to form a functional channel. Thus, the presence of the protein can be detected by assaying the cell for T-type calcium channel activity. Indeed, assaying for channel activity serves to determine whether a nucleic acid encoding a putative calcium channel, in fact, encodes a species of T-type channel (as opposed to a member of another genus of calcium channels). For example, when large cells (e.g., oocytes) are used as the host cells, the electrophysiological properties of the channel can be investigated. Thus, the membrane activity of whole cells expressing the nucleic acid can be measured directly, such as via patch clamp techniques using a voltage clamp electrode and a current electrode (Bernal et al., J. Pharmacol. Exp. Ther., 282, 172-80 (1997)). Alternatively, the activity of single channels can be measured, such as with a standard depolarizing bath and pipette solutions (Lacerda et al., Biophys, J., 66, 183-43) (1994)). However measured, the properties of cells into which the putative nucleic acid is introduced are compared to the channel conductance, voltage dependency. activation kinetics, inactivation kinetics, or tail current known for T-type channels and discussed above. A measure of current density (e.g., pA/pF) can also be used to assess the level of gene expression in the cells, normalizing for cellular volume.

While, in accordance with the present invention, an isolated cell into which the T-type calcium channel nucleic acid has been introduced (and preferably stably expressing the nucleic acid to produce the protein) can be prepared, preferably, such transfection protocols result in a population consisting essentially of such transfected cells. For standardizing the results of many experiments, it is even more desirable to employ an established cell line consisting essentially of such cells. Preferably, for use in high throughput assays, cell lines stably expressing a T-type calcium channel exhibit a current density of at least about 40 pA/pF (e.g., at least about 45 pA/pF), such as about 50 pA/pF or even 55 pA/pF or higher. Preferably, a cell line in accordance with the present invention is able to propagate the nucleic acid through

several passages (e.g., for at least 10 passages), and, preferably, the nucleic acid is stably integrated into the chromosomes of such cells. Thus, the cell line can propagate the nucleic acid for at least 20 passages, and more preferably significantly more than 20 passages (e.g., at least about 25 passages, or even more).

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Regardless of the cell system, the ability to express a T-type calcium channel nucleic acid within host cells to produce an active channel permits the channel to be further studied. In this regard, the present invention provides a method of identifying a drug which affects T-type calcium channels. The method involves first expressing a T-type calcium channel in a cell to produce an active channel, as herein described. The cell expressing the channel is then exposed to a solution containing a putative drug for interfering with the channel. Thereafter, the presence or absence of calcium flux in response to a change in membrane potential is assayed. Any such assay can be employed within the context of the present invention, (e.g., using labile dyes, radioisotopes (e.g., 45Ca), recording electrophysiological changes in the membrane. etc.). A quick method of assaying for calcium flux is first to introduce a calcium-sensitive labile dye into the cells. For example, the dye can be one such as those that fluoresce or change color in the presence of calcium, many of which are known to those of skill in the art (e.g., Indo-1). Thereafter, the cells are exposed to a depolarizing solution containing high (e.g., about 50 mM) potassium concentration and a drug, and the reaction of the labile dye is compared to control cells. Using a labile dye affords the ability to assay many putative drugs quickly in a high throughput assay for putative drugs affecting T-type channels. For example, the initial screening can be carried out in 96 well plates. Moreover, dose-response data can be readily generated by exposing the cells to several concentrations of the same putative drug.

Once a putative drug is detected, its effect on the electrophysiology of the cell (e.g., single channel conductance, voltage dependency, activation kinetics, inactivation kinetics, and tail current of the cells) can be investigated in detail. Generally, the effect of the putative drug on T-type calcium currents is assessed by measuring the various electrophysiological parameters in the presence of various concentrations of the drugs and comparing the data to untreated (or sham-treated) control cells. Cells preferably are maintained in a continuous perfusion chamber during such experiments to facilitate changing solutions. The inventive method of identifying a drug which affects T-type calcium channels can employ any nucleic acid encoding a T-type calcium channel (or derivative thereof), such as those nucleic acids described herein. In fact, as several isoforms of T-type channel exist, the assay method can be repeated using nucleic acids encoding different isoforms to identify

drugs that preferentially target a given isoform, or drugs which affect more than one isoform of T-type calcium channels.

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Aside from affording an in vitro assay for detecting potential therapeutic or investigative drugs targeting T-type calcium channels, the method of expressing the T-type calcium channel nucleic acid can also be used in vivo. For example, as mentioned, several neurological and muscular diseases or disorders have implicated mutations affecting native nucleic acids encoding T-type calcium channels. The present invention, thus, provides a method of treating a disease or disorder associated with a deficiency in a native T-type calcium channel nucleic acid. The method involves introducing a vector having the T-type calcium channel nucleic acid into cells of a host in which native expression of the nucleic acid is deficient. Thus, for example, for treating cardiomyopathy associated with deficiencies in T-type calcium channels, the vector is introduced into myocardial cells. Similarly, for treating forms of epilepsy associated with deficiencies in T-type calcium channels, the vector is introduced into neurons (e.g., thalamic neurons). Within the target cells, the nucleic acid within the vector is expressed to produce active T-type calcium channel. By similar methods, an nucleic acid having a sequence antisense to a sequence encoding a T-type calcium channel (or a portion thereof) can be expressed within a cell. The presence of an antisense sequence can down-regulate the expression of native T-type calcium channel genes by hybridizing to T-type channel mRNA within the cell. Thus, the present invention is useful to treating disorders associated with over-expression of T-type calcium channels.

T-type channel proteins (such as whole T-type calcium channels, domains of such channels, chimeras including portions of T-type calcium channels, etc.) can be employed to generate antibodies (e.g., immunoglobulins) to T-type calcium channels. Thus, the present invention provides an isolated and substantially purified antibody molecule recognizing an epitope on a T-type calcium channel. Such antibodies can be monoclonal antibodies or polyclonal antisera. Antibodies recognizing T-type calcium channels can be used to purify the channels from cell extracts or other solutions by standard methodologies (e.g., immunoprecipitation). Moreover, depending on the location of the epitopes for the antibodies on the T-type calcium channel, the antibodies can be used to affect the channel proteins present on the surface of cells. Thus, antibodies directed to T-type calcium channels are potential reagents for studying the channels as well as for therapy.

Such antibodies can be produced by any suitable method, many of which are well known in the art. Thus, for example, the antibodies can comprise polyclonal antisera obtained from innoculated animals. Alternatively, the antibody molecules can be monoclonal antibodies obtained from a cell line (e.g., a hybridoma cell line). Thus,

the present invention provides a cell which produces such antibodies. Such a cell can be *in vitro* or *in vivo*; however, where the cell is *in vitro*, preferably it is within an established cell line consisting essentially of such cells.

Several examples are presented below to illustrate the invention. Taken together, the examples demonstrate the cloning of twelve novel proteins and their characterization as T-type calcium channel α subunits. These examples are included here for purely illustrative purposes; as such, they are not to be construed so as to limit the scope of any aspect of the invention.

Many procedures employed in the following examples are techniques routinely performed by one of ordinary skill in the art (see generally Sambrook et al., Molecular Cloning, A Laboratory Manual. Cold Spring Harbor Laboratory. Cold Spring Harbor, NY (1989)) and are not discussed in detail. However, some reagents and methods deserve specific description. Thus, for example, in vitro translation and expression were conducted as described previously (Schneider et al., Receptors and Channels, 2, 255-70 (1995)). Xenopus laevis oocytes were prepared as described previously (Bernal et al., J. Pharmacol. Exp. Ther., 282, 172-80 (1997)). To express proteins, 10 or 30 ng of capped cRNA was injected into the oocytes in a volume of 50 nl. For single channel recording, oocytes were injected with 100 ng capped cRNA and incubated for one week prior to assay.

Cells were voltage clamped using a two-microelectrode voltage clamp amplifier as described (Bernal et al., *J. Pharmacol. Exp. Ther.*, 282, 172-80 (1997)). The standard bath solution contained the following: 40 mM Ba(OH)₂, 50 mM NaOH, 1 mM KOH, 0.1 mM EDTA, and 5 mM HEPES, adjusted to pH 7.4 with methanesulfonate. The osmolality of the 2 mM Ba²⁺ and 10 mM Ba²⁺ solutions was balanced by increasing the NaOH concentration as described (Lory et al., *J. Physiol.*, (London), 429, 95-112 (1990)). Voltage and current electrodes (1.5-1.8 M tip resistance) were filled with 3 M KCl. Except as noted, data were acquired at 4 kHz using the pCLAMP system, and filtered at 1 kHz. Data were analyzed using pCLAMP software. Boltzman fits and linear regression were calculated using Prism.

EXAMPLE I

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This example demonstrates the cloning and characterization of putative T-type calcium channels.

A search of the Genbank library was conducted to identify clones identified as having some degree of homology to known calcium channel sequences. The search identified an expressed sequence tagged (EST) partial sequence in a human brain clone (H06096), which was used as a probe to screen a \(\text{\chi} \text{gt10 cDNA library prepared } \)

from rat brain. Successive screening of the cDNA library identified five overlapping clones which were aligned to construct an entire cDNA sequence, termed αIG.

The αIG cDNA was cloned into the pSP72TM vector and sequenced by standard computer-assisted sequencing. Using the αIG cDNA, the amino acid sequence of the αIG protein was deduced and compared to the sequences of other known calcium channel α subunits. By similar methods, homologous human (H19230 and R19524) and mouse (AA286626) EST clones were also identified and partially sequenced, and alternately spliced variants were identified. The deduced cDNA and amino acid sequences for eight full-length α1G T-type channels are set forth, respectively, as SEQ ID NOs:1-8.

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A second T-type calcium channel, termed $\alpha 1H$, was isolated by screening a human heart cDNA library with a fragment of the $\alpha 1G$ sequence. An alternately spliced isoform was also identified. The full-length cDNA and amino acid sequences for these $\alpha 1H$ T-type channels are set forth, respectively, as SEQ ID NOs:9 and 10.

A third T-type calcium channel, termed α II, was isolated by screening a rat brain cDNA library at low stringency using a fragment of the rat α IG gene. Fifty plaques were identified, many of which were not detected in a second screening. A third screening with a fragment from α IH identified two clones. Subsequent screening, and the use of the GenBank database, led to the identification of the full length rat and human cDNA and amino acid sequences, set forth at SEQ ID NOs: 11 and 12, respectively.

The α 1G, α 1H, and α 11 amino acid sequences were compared to each other and a known calcium channel (α 1E) to investigate the conservation of protein structure and function. The comparison indicates that the α 1G, α 1H, and α 11 amino acid sequences within the putative membrane-spanning domains are about 90 % identical to each other, while the α 1G, α 1H, and α 1I sequences are only roughly 40 % identical to the α 1E clone.

Figures LA-1E indicate this conservation between the proteins. The conservation of charged residues, particularly in the S4 domains, is consistent with the role of the α 1G, α 1H, and α 1I proteins as ion channels. However, two of the glutamates associated with ion specificity in other calcium channels have been replaced with aspartate, suggesting altered ion selectivity. Strikingly, α 1G, α 1H, and α 1I display only low homology to sequences linking the membrane-spanning regions within each domain, and even less homology between the intraceflular loops linking domains. Notably, neither α 1G, α 1H, nor α 1I possesses sequences known to bind β subunits or Ca²⁴ ions.

WO 99/29847 PCT/US98/23161

EXAMPLE 2

This example demonstrates the production of cell lines stably expressing the cloned α 1G, α 1H, and α 1I proteins,

HEK-293 cells were transfected with either the rat α1G cDNA (SEQ ID NO:1), the human α1H cDNA (SEQ ID NO:9), or the rat α1I cDNA (SEQ ID NO:11). As a control, cells were also transfected with human α1E plus human β3 (Schneider et al., Receptors Channels, 2, 255-70 (1994); Murakami et al., Eur. J. Biochem., 236, 138-43 (1996)). The DNA constructs included a neomycin resistance gene conferring resistance to G418. The cells were cultured under standard conditions using medium containing G418 to select for stable transformants.

Surviving clones were expanded and assayed for electrophysiological activity to determine the presence of channels within the membrane. Whole-cell currents were recorded from ruptured patches using an Axopatch 200A amplifier. Digidata 1200 A/D converter, and pCLAMP 6.0 software. Data were digitized at 2 kHz and filtered 15 at 1 kHz or off-line. All experiments were performed at room temperature. Pipettes were made out of TW-150-6 capillary tubing (World Precision Instruments, Inc., Sarasota, FL), using a Model P-97 Flaming-Brown pipette puller (Sutter Instrument Co., Novato, CA). The internal pipette solution contained the following: 55 mM CsCl, 75 mM CsSO₃, 10 mM MgCl₂, 0.1 mM EGTA, 10 mM HEPES, pH adjusted to 7.2 with CsOH. The external Tyrodes solution was the following: 140 mM NaCl, 6 mM KCl, 2 mM CaCl₂, 10 mM glucose, 5 mM HEPES, pH 7.4. The recording solution contained the following: 10 mM BaCl₂ solution (or 2 mM CaCl₂), 140 mM tetraethylammonium (TEA) chloride, 5 mM CsCl, 1 mM MgCl₂, 5 mM glucose, and 10 mM HEPES, pH adjusted to 7.4 with TEA-OH. Under these solution conditions the pipette resistance was typically 1.5-2.5 M Ω . Cell capacitance was measured by integrating the charging current during a 10 mV hyperpolarizing pulse (holding potential -80 mV).

Using these recording techniques, values for pA/pF were obtained for each cell line, which is a measure of current density normalizing for cell size. One clone (#N2) expressed the rat α 1G protein and has a current density of 42 pA/pF. Another clone (#13), expressed the human α 1H protein and exhibited a current density of 53 pA/pF. Three clones (#11, #19, and #25) expressed the rat α 1I protein and exhibited current densities of 40 pA/pF, 45 pA/pF, and 55 pA/pF, respectively

35 EXAMPLE 3

This example demonstrates that the cloned putative T-type calcium channels exhibit T-type current-voltage relationships.

Current traces were elicited by depolarizing voltage clamp pulses of the membranes of cells. The α 1G, α 1H, and α 1I proteins were produced in *Xenopus laevis* oocytes by linearizing the DNA vectors containing the coding sequences, and transcribing the coding sequences *in vitro* by standard methods. Oocytes were then injected with the capped RNA.

Figures 2A-2E depict data obtained from these experiments using cells injected with $\alpha 1G$ (Figure 2A), $\alpha 1H$ (Figure 2B), and $\alpha 1I$ (Figure 2C) and $\alpha 1E$ (Figure 2D). These data indicate that cells expressing $\alpha 1G$, $\alpha 1H$, and $\alpha 1I$ exhibit T-type calcium current, while occytes expressing $\alpha 1E$ as well as uninjected occytes (Figure 6A) do not.

Current voltage curves were developed using cells injected with $\alpha 1G$, $\alpha 1H$, $\alpha 1I$, and $\alpha 1E$. Figures 3A depicts such data generated in a 10 mM Ba⁻⁺ test solution. These data were transformed into conductance and fit with a Boltzman equation to determine the midpoint of activation ($V_{0.5}$). Gating potentials for $\alpha 1G$, $\alpha 1H$, and $\alpha 1I$ (-38 ± 1 mV n=8, -44 mV ± 1 mV, n=10, and -31 mV ± 1 mV, n=6, respectively) were in accordance with the gating potential measured for the HEK-293 cells (-41 ± 1 mV, n=10), while $\alpha 1E$ required significantly more positive potentials to open (-2.6 mV ± .4 mV, n=3).

To compare the characteristics with published values (Huguenard, Ann. Rev. 20 Physiol., 58, 329-48 (1996)), the α1G current was recorded at varying concentrations of Ba²⁺. As indicated in Figure 3B, in solutions containing 2 mM Ba²⁺, V_{6,5} was -46.5 mV, and the slope factor (k) was 6.6 (n=7). However, when the Ba²⁺ concentration was 40 mM, V_{6,5} was recorded at -21 mV, presumably due to the results of barium on surface charge screening (see, e.g., Wilson et al., J. Membrane Biol., 72, 117-30 (1983)). Similar values were recorded for α1H and α1I.

These results indicate that α 1G, α 1H, and α 1I are low-voltage activated calcium channels (i.e., from about -60 mV to about -30 mV in 10 mM Ba²⁺).

EXAMPLE 4

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This example demonstrates that the cloned putative T-type calcium channels exhibit T-type tail current.

Tail current was measured at -90 mV after first opening the channels with a voltage step to -10 mV. The voltage-dependence of tail current in cells expressing α1G (oocytes) α1H (HEK 293 cells), and α1I (HEK 293 cells) was measured at varying test potentials. As a control, tail current was also measured from a high voltage activated channel α1E, which Raw data from recordings data were fit with a single exponential and plotted as a function of depolarization potential (Figure 4).

These results demonstrate that the tail currents for the cloned $a \mid G$, $\alpha \mid H$, and all calcium channels are voltage-dependent, consistent with known T-type calcium tail currents. Additionally, these data demonstrate that the tail current for each of the cloned channels is between about 1 ms and about 10 ms following repolarization to a membrane potential from about -80 mV to about -60 mV in a solution with a barium concentration of from about 10 mM to about 40 mM.

EXAMPLE 5

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This example demonstrates that the cloned putative T-type calcium channels exhibit T-type single channel conductance.

Measurement of single channel conductance is complicated by the low probability of channel opening at negative potentials when the driving force is large. Thus, single channel conductance was measured similarly for measurements of tail currents to enhance channel opening at negative potentials. Single channels were measured with standard depolarizing bath and pipette (115 mM BaCl₂, 1 mM EGTA, and 10 mM HEPES, pH 7.4) solutions (Lacerda et al., Biophys. J., 66, 1833-43 (1994)). Data were analyzed with TRANSIT (VanDongan, Biophys J., 70, 1303-15 (1996)). Single channel amplitudes were measured by averaging the values obtained from Gaussian fits to all-points histograms of traces with openings, selected openings, or amplitude histograms of idealized openings. It has been reported that some occytes contain a native 9 pS channel. These endogenous channels can be distinguished by their 2-fold larger current amplitudes at the potentials tested (e.g., -20 mV, i = 0.8 for endogenous channels as opposed to 0.4 pA for \(\alpha \) However, such endogenous channels were not detected either at the whole cell or single channel level in the 25 oocytes tested.

Current through the main open state of each open channel was measured at each potential and plotted against each test potential. Single channel currents for several patches were then averaged and plotted as a function of test potential, wherein the slope of the plot indicated the single channel conductance. The average slope conductance of the α IG channel was measured at 7.5 ± 1.5 pS, which corresponds with the reported values for T-type calcium channels (Hugenard, Ann. Rev. Physiol., 58, 329-48 (1996)). Similar results were also obtained with both α 1H (10.8 \pm 1.4 pS). Data collected from recordings of the α11 channels indicate that they open to two distinct amplitudes. The conductance for the small amplitude all openings was measured at 3.9 ± 0.5 pS, while that for the large $\alpha 11$ openings was measured at 11.4 $\pm 0.5 \text{ pS}$).

These results indicate that the cloned \(\alpha \) IG, \(\alpha \) IH, and \(\alpha \) II proteins exhibit T-type single-channel conductance (e.g., from about 4 to about 12 pS).

WO 99/29847 PCT/US98/23161

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EXAMPLE 6

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This example demonstrates that a cloned T-type calcium channel can be used for identifying a drug which affects T-type calcium channels.

HEK-293 cells were subjected to treatment as indicated above in Example 3, except that an experimental group of cells were exposed to a solution containing 1 μ M mibefradil, a known inhibitor of T-type calcium current. As depicted in Figure 5A, the presence of mibefradil almost completely abolished T-type current in cells expressing α 1G. Cells expressing either α 1G or α 1H were similarly treated using various concentrations of mibefradil to determine a dose-response relationship. These results, depicted in Figure 5B, demonstrate that about 50% inhibition was achieved at a mibefradil concentration of 1 μ M.

All of the references cited herein, including patents, patent applications, and publications, are hereby incorporated in their entireties by reference.

While this invention has been described with an emphasis upon preferred embodiments, it will be obvious to those of ordinary skill in the art that variations of the preferred embodiments may be used and that it is intended that the invention may be practiced otherwise than as specifically described herein. Accordingly, this invention includes all modifications encompassed within the spirit and scope of the invention as defined by the following claims.

WO 99/29847 PCT/US98/23161 19

What is claimed is:

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- 1. A isolated or substantially purified nucleic acid encoding a protein comprising at least one domain of a T-type calcium channel α subunit.
- 2. The nucleic acid of claim 1, wherein said protein comprises an entire Ttype calcium channel a subunit.
- 3. The nucleic acid of claim 2, wherein said protein comprises SEQ ID NO:13.
- 4. The nucleic acid of any of claims 1-3, wherein said calcium channel begins to gate from about -60 mV to about -30 mV in 2 mM Ba2+. 10
 - 5. The nucleic acid of any of claims 1-4, wherein said calcium channel exhibits a tail current of from about 1 ms to about 10 ms following repolarization to a membrane potential from about -80 mV to about -60 mV in a solution with a barium concentration of from about 10 mM to about 40 mM.
- 15 6. The nucleic acid of any of claims 1-5, wherein said calcium channel exhibits a single channel conductance of from about 4 pS to about 11 pS in a solution with a barium ion concentration of about 100 mM.
 - An isolated or substantially purified nucleic acid hybridizing to the nucleic acid of any of claims 1-6.
- 20 8. An isolated or substantially purified nucleic acid hybridizing to the nucleic acid of claim 7.
 - 9. The nucleic acid of claim 8 comprising a sequence encoding at least one domain of a T-type calcium channel iz subunit.
 - 10. A vector comprising the nucleic acid of any of claims 1-9.
 - 11. A cell into which the vector of claim 10 has been introduced.
 - 12. The cell of claim 11, which expresses said nucleic acid to produce said protein.
 - 13. The cell of claim 11 or 12, which stably expresses said nucleic acid to produce said protein.
- 30 14. A population of cells consisting essentially of cells according to any of claims 11-13.
 - 15. An established cell line consisting essentially of cells according to any of claims 11-13.
- 16. A method of identifying a drug which affects T-type calcium channels. 35 said method comprising expressing a T-type calcium channel in a cell, exposing said cell to a putative drug, and measuring the calcium flux through the membrane of said cell in response to a change in membrane potential.

- 17. The method of claim 16, wherein said calcium flux is assayed by using a calcium-sensitive labile dye within said cell.
- 18. The method of claim 16, wherein said calcium flux is assayed by measuring the electrophysiological properties of said cell.

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- The method of claim 16, wherein said calcium channel comprises SEQ ID NO:13.
 - 20. An isolated or substantially purified immunoglobulin recognizing an epitope on a T-type calcium channel protein.
 - 21. A cell in vitro which produces the immunoglobulin of claim 20.
- 22. An established cell line consisting essentially of cells according to claim21.

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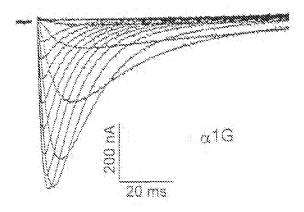


Figure 2A

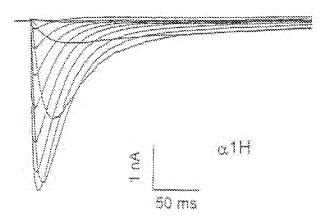


Figure 2B

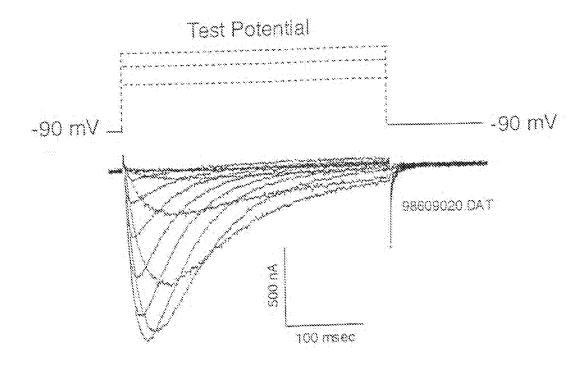


Figure 2C

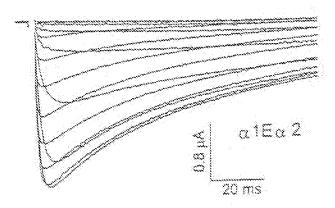


Figure 2D

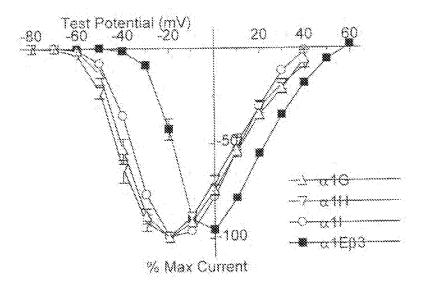


Figure 3A

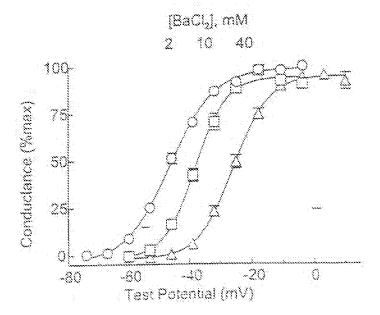


Figure 3B

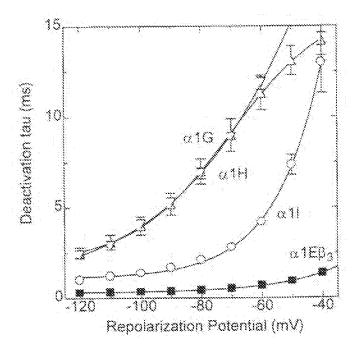


Figure 4

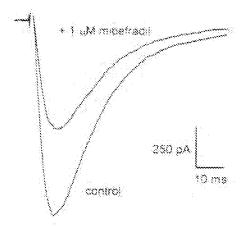


Figure 5A

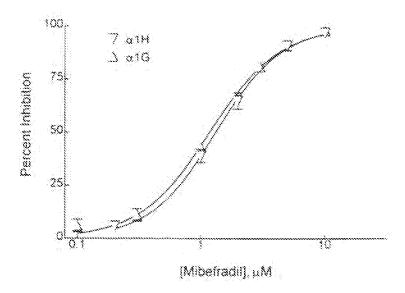


Figure 5B

SEQUENCE LISTING

<1100 Ferez-Reyes, Edward Colbos, Learne L. Ŝ Layola University of Onicago <120> T-TYPE VOLTAGE-GATED CALCION CHANNELS AND METROD OF USING SAME 10 <130% 89066 <140× <141× 13 <150> 03 08/985,809 <151> 1997+12-05 K160> 13 20 <170> Patentlo Vet. 2.0 <210× 1 <211> 6750 <212> DMA <213> Homo sapiens <330> <221> CDS <222> (1),.(6750) 30 <400× 1 aty gac gay gay gay gat aga yeg gge yee gay gay tog gga cag cec Wet Asp Glo Glo Glo Asp Gly Ala Gly Ala Glo Glo Ser Gly Glo Pro 35 38 cây âgo îto até cyy oto aer yar aig îcy gây dio yyy ydd cyy coy Arg Ser Phe Met Arg Leu Asn Asp Leu Ser Gly Ale Gly Gly Arg Pro 40 gay too ago tos que que ape poo ceo que ser to to te que que 144 Giy Fro Cly Ser Als Glu Tys Asp Pro Giy Ser Als Asp Ser Slo Als 132 gay ggg ong dog tad dog geg the god bdg gtg gtt the the tad the 43 Glu Gly Leu Pro Tyr Pro Ala Leu Ale Pro Vel Vel Pho Phe Tyr Leu ago cag gad ago ogo oog ogg ago tgg tgt ete ego ago gto tgt sac 240 Ser Gin Asp Ser Arg Fro Arg Ser Trp Cys Leu Arg Thr Val Cys Ash 50 coo taga titi gaig ogo ato ago aky thy ato ato ott eto aac igo ata Prv Trp Phá Glu Arg Ile Ser Met heu Val Ila Leu Leu Aso Cys Val 55 and only ggp and the egg beat the pag beat the pag and are get this mad the can Thr Leu Gly Met Phe Arg Pro Cys Glu Asp Ile Ala Cys Asp Ser Glo 100 ttt dit oog ato olg oag got tit gat gat tin alt tit got tit tit Arg Cys Arg Ile Leu Gln Ala Phe Asp Asp Phe Ile Phe Ala Phe Phe 333 god gig gag aig gig gid aag aig gig god iig ggd aid iir ggg aac

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35	ege Arg	tat Tyr	tac Tyr	cag Gln 260	ace Thr	gag Glu	aac Asn	gag Glo	gat Asp 265	gag Glu	agc Ser	coc Fro	ttc Phe	atc Lie 270	tgc Cys	ter Ser	816
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10	ct q														ser ser		1296
13	tat Tyr	gag Glu	389 910 435	ctq Leu	ctc	asg Lys	rac Tyr	ctq Leu 440	gtq Val	tac Tyr	aro Ile	ott Leu	ogt Arg 445	asq Lys	gca Ala	gcc Ala	1344
***	ege Arg	agg Arg 450	ctq Leu	got Als	caq Slo	gts Val	tot Ser 483	egg Arg	gce Ala	gca Ala	ggt Gly	ete Val 460	ogg	gtt Val	614 ada	ctg Leu	1332
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20	gag	edd Exp	agc Ser	rer Ser	gtg Val 725	otg Leu	gcc Ala	ttc Phe	tgg Trp	agg Arg 730	ata Leu	ato	tgt Cys	gac Asp	acc Thr 735	ttc Pbe	2206
25	oga Arg	aag Lys	att	gtg Val 740	930 888	Set Set	sag Lys	îyr Tac	ttt Phe 745	ggo Siy	Arg Cgg	gga Sly	ato lle	atq Met 750	arc Ila	gcc Ala	ZZ56
30	atc	Leu Leu	oto Val 785	aac Asn	aca Thr	cte Leu	ago Ser	atg Met 760	gge	ato Ile	gaa Slu	tac Tyr	cac Bis 763	gag Glu	cag Sln	\$10 000	2304
35	gag Glu	gag Glo 770	ctt Lea	acc	aec Asn	gcc Ala	ota Leu 775	gaa Glu	atc ile	Ser ago	aac Aan	atc Ile 780	gtc Val	t to Phe	acc Thr	ago Ser	2352
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40				aag Lys													2448
45	atc Ile	agc Ser	gtg Val	tgg Trp 820	gaq Glu	atc	grg Val	ej y gge	cag 51n 825	cag Sln	999 61y	ggc ggc	G1y ggc	ctg Les 830	tog Ser	gtg Val	2496
50				ttc Phe													2544
33	poq	gcg Ala 850	Lest	caq Gln	egg Arg	caq Gln	ctq Leu 855	gtg Vel	gtg Val	ctc	atg Met	aaq Lys 860	acc Thr	atg Met	gac Asp	aac Asn	2592
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10	cto ta Leu Ty 93	r:Am														2332
13	art qo lle Al 945	s ata s bea	atg Met	acc Thr	tto Pho 950	617 dac	aac Ass	tac Tyr	ysi Vai	ctc Leo 955	tte Pne	aat Asn	tig Læy	otg Leu	gto Val 960	2880
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20	gaa to Glu Se															2976
25	agg aa	9 239 8 Lys 995	Cys	ttg Leu	góc Ala	Louis	gtg Val 1900	too Ser	arg Læu	gga Gly	GIO	cac 818 1005	ccg Pco	gag Glu	ctg Let	3024
30	ogg aa Arg Ly 101	ន និទ្			Pro					His						3072
35	atg to Met Se 1025	g stg r Leu	ecc Pro	Lys	agc Ser 1030	acc Thr	agc Ser	acq Thr	OJ A	ctg Leo 1035	gge Gly	gag Glu	gog Ala	$v_{\Theta,i}$	gge Gly L040	3120
34.	ect go Pro Al	g tog a Ser	ROG	oğo Arg 1045	acc Thr	agc Ser	egc Ser	$S \otimes x$	999 619 6050	tog Ser	gca Ala	gag Glu	pro	999 Gly 1055	ded Als	31.68
40	god da Ala Bi	c gag s Slu	atg Met 1060	Lys	toa Sar	etg Pro	$p_{x,0}$	agc Ser 1065	gcc Ala	cge Azg	agc Ser	Set	ccg Pro 1070	His	agc Ser	3316
45	oco tę Pro Tr	g ago p Sex 1075	Ala	gea Ala	agc Ser	Ser	tgg Trp 1080	acc The	agc Ser	agg Arg	Arg	tra Ser 1085	ago Ser	ogg Arg	aac Asn	3364
50	age et Set Le 109	na Gly			Pro					Arg						3332
55	cgg cq Arg Ar 1105	ng tec g Sex	ctq Leu	Leu	tog Ser 1110	gga Gly	gaa Glu	Gly Gga	Glo	gag Glu 1115	Sex	cag Gln	gat Asp	Giy	gag Glu 1120	3360
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3	the yet tot gag had bag gad ego aat ggd aag tog got toa ugb bgd Ser Ala Ser Clu Hia Gin Asp Cys Ash Giy Lya Ser Ala Ser Gly Arg 1170 - 1173 - 1180	3552
10	ctg god ogg god otg ogg oct gat gad occ oca otg gat gag gat gad beu Ala Arg Ala Leu Arg Pro Asp Asp Pro Pre Leu Asp Gly Asp Asp 1188 1190 1198	3600
e e	got gat gan gag ggo aac otg ago aaa ggg gaa ogg gto ogo gog tgg Ala Ann Ann Slu Gly Ann Leb Sex Lya Gly Gio Ang Val Ang Ala Trp 1205 1210	3648
13	err cgs god tga oto oot god tgo tgo tto gag oga gad tod tgg toa lle Arg Ala Arg Leu Pro Ala Cys Cys Lau Glo Arg Asp Ser Trp Ser 1220 1225 1230	3696
20	god tao ato tto cot set sag tem agg tto ogc eto otg tgt can ogg Ala Tyr lle Phe Pro Pro Glo Ser Arg Phe Arg Leo Leo Cys Bis Arg 1935 - 1240 - 1245	3744
25	ato ato ach hac and sty tto gat use gtg gtd off yfd ato ato tto Ilo Ila Thr His Lyr Met Phe Asp His Val Val Leu Val Ila Ila Phe 1250 1255	3792
30	oft eac tyc atc acc atc yes aty pay eyo cor sam att yes con cac Leu Asn Cys Ils Thr Ile Alm Met Glu Ary Pro Lys Ile Asp Pro Bis 1265 1270 1280	3840
35	ago got gas ogo sho tto otg aco ote tee aat tac ato tto aco gos Ser Ala Glu Arg lle Phe Leu Thr Leu Ser Asn Tyr lle Phe Thr Ala 1295	3888
4 3 34 1	gic tit cig gct qaa arg aca grg aag gtg gtg gca cig ggc tgg tgc Val Phe Leu Ala Glu Met Thr Val Lys Val Val Ala Leu Gly Trp Cys 1300 1305 1310	3936
40	ttc gan dag cag gog tac otg ogg agd agt ogg aac gtg otg gas ggg Phe Gly Gle Gin Ala Tyr Lee Arg Ser Ser Trp Amn Val Lee Asp Gly 1316 1320 1325	3984
45	otg ttg gtg otc atc toc gtc atc gac att ctg gtg toc atg gtc tot Leu Leu Val Leu Ile Ser Val 11e Asp 11e 1eu Val Ser Met Val Ser 1336 1335	4032
30	yac ago ggo acc aag ato otg ggo atg otg agg gtg otg otg otg Asp Sar Gly Thr Lya Ile Leu Sly Mer Leu Arg Val Leu Arg Leu Leu 1345 1350 1360	4080
55	ogg acc old ogc ocq otc agg gtg atc ago ogg gcg cag ggg otg aag Arg Thr Leo Arg Pro Leo Arg Val Ile Ser Arg Ala Glh Gly Leo Lys 1365 1370 1375	4128
	ong gig gig gag acg ong ang noc toa ong asa occ and ggc acc ent Leu Val Val Glo Thr Leu Met Ser Ser Leu Lys Fro lle Gly Ash lle 1380 1385 1390	4176
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	cag ctc ttc 444 ggg asg tit ttc gtg tgc cag ggc gag gat acc agg	4272

	Glo Leo 1410	Pne	Lys	ĠΪŲ	Sys:	36e 415	\$10#3	Vel.	Cys		G19 (420	ซี่มีน	Aaç	The	Arg	
e <mark>jeg</mark>	aam atc Ast lie 1425	ace Thr	aat Asn	Lys	109 301 430	gac Asp	tgt Cya	gos Als	Glo	gcc Ala L435	agt Sex	tac Tyr	cag Ara	xx b	qtc Val (440	4320
10	cgg cac Arg His	aaq Lys	Tyr	880 Asn 445	ttt Phe	gac Asp	aac Asn	Lesa.	gac 61 y (450	cag Gla	gco Ala	ctq Leu	West.	tec Ser 1455	ctq Lea	4368
15	tto gtt Phe Val	દેશકોલ	gco Ala L460	tee Set	saq Lys	gat Asp	Cly	tgg Trp [465]	gtg Val	gas Asp	ato Ile	Met	600 Tyr 1470	gət Asp	ggg Gly	44 16
	ctq qut Leu Asp					Asp					Mari					4364
20	tgg atg Tip Met 1490	£26848	ctg	tac Tyr	Pho	atc Ile 495	tug Ser	ttt	etq Leu	Teu.	ett 11e 1500	gtq Val	gcc Ala	ttc Phe	ttt Pbe	4512
23	gto ctg Val Leb 1505	aac Asc	atg Met	Phe	grq Val Slo	ggt Gly	grg Val	gtg Yal	Val	989 Sip 1515	asc Asri	tto	cac Mis	Ly St	tg: Cys 1520	4560
30	egg cag Arg tin	cec His	Gln	gaq Glu (525	gaa Glu	gag Glu	929 61u	Ais	099 Arq 1530	cgg Arg	tgg Arg	gag Glu	Glu	889 1498 1535	cgo Arg	4800
35	ren yið cie cas	Axq	ctg Leu 1540	gag Glu	ess lys	aaq Lys	$A\varepsilon q$	agg Arg 1545	agt Ser	aag Lys	gag 61u	Lys	cag Gla 1550	ety Met	got Ala	4656
T. T.	gaa goo Glu Ala		Cys			Tyr					$\mathbb{S}\otimes \mathbb{X}$					4704
40	ute gta Leu Val 1570	813	cac His	ttq Leu	Cys	acc Thr 1575	ago Ser	çac His	tac	Len	gac Asp 1580	Less	ttc Phy	atc Ila	aca Thr	4752
43	ggt gtc Gly Vai 1585	ate lle	gag Sly	Legi	asc Asq L590	gtq Val	gto Val	acc Thr	det	qcc Ala 1595	atg Met	gag Glu	cac His	Tyr	089 61n 1600	4800
50	cag occ Gla Pro		110					Len					Tyx			4848
35	äct sto Thr Val	1.18					898					Val				\$896
	tto cgt The Arg	cgg Arg 1635	Phe	ttc Phe	cag Gln	Axx	agg Arg 1640	tgg Trp	aac Asn	caq Sin	Levis	gac Asp 1645	ctg	gcc Ala	att Ile	4944
60	gig otg Val Leu 1650	Leu			Met					Glu						4992
	- acc teg	ctg	cce	atc	880	000	acc	ato	atc	oge	atc	atg	agg	årå	arg:	5040

	Ala Ser Leu 1665	Pro Die A			Ata Ila 8 1678		.et 580
3	ogo att goo Afg lie Ala	cga gtg c Arg Val 14 1685	to say old to Lys let	ctq esq bes bys 1690	atg git g Met Als Vi	g ggt atg : x1 Gly Met } 1695	rgg 5088 Yrg
10	geg etg etg Ala Leu Leu	gac acq q Asc Thr V 1700	el Met Glr	god cig Ala Leu 1705	cor cag g: Pre Gin Y:	ig ggg aac c al Gly Asn 1 1710	ite 5136 Mu
35	ggs off ofc Gly ben Len 1715	Phe Met L		: Fhe lle		la Leu Gly i	
. (4. j.)	gag oto tit Slu Leu Phe 1730						
20	cty ggs dgs Leo Gly Arg 1745	ost gov a His Ala T 17	nr Phe Arç	Asn the	ggc atg g Gly Met A 1755	la Phe Leo 1	aca 5280 Chr 760
23	ctc ttc cga Leu Phe Arg	gro too e Val Ser T 1765	ca ggt gad hr Gly Asp	aat tgg Aan Tip 1770	aat ggc a Ass Sly I	ct atg aag q le Met Lys / 1775	gac 5328 Asp
30		gad tgt g Asp Cys A 1780	an pag gag sp Gln Gli	tec acc Ser Thr 1785	tgo tec a. Cys Tyr A.	sc acg grd a on Thr Val 1 1790	sto 5376 (le
35	tog oot ato Ser Pro lle 1795	Tyr Phe Y	tg too tt: al Sex Phe 180(Val Leo	acg gcc co The Ala G	ln Phe Val 1	rta 5424 Leu
ALE WE.	gto aac gtg Val Aso Val 1810	gtg ato g Val lle A	co gto cto la Val Lei 1815	ı atq aaq ı Met Lys	cac ong g Bis Leu G 1820	ag gag age a lu Glu Ser /	880 5472 Asn
40	eag gag ycc Lyx Glu Ala 1875		io Ala Gl.	Leu Glu		eu Glu Leu (
45						je age cec ! ly Ser Pro ! 1855	
50	Leu Trp Pro	ggg gtt g Gly Val G 1860	ag ggc ccc lu Giy Pro	gav agc Asp Ser 1865	ccc qac a Pro Asp S	gc ccc asg : er Pro Lys 1 1870	opt 5616 Pro
<i>55</i>	ggg gat org Gly Ala Leu 1875	: Bis Pro A	og god dad Ia Ala Bis 1880	s Ala Arg	tca got t Ser Aia S 18	er His Phe 1	toc 3064 Ser
ww.	Ctg gag cac Leu Glu Mis 1890	ccc acg a Fro Thr M	tg cag co: et Gln Pro 1895	cac cco His Pro	acg gag c Thr Glu L 1980	tg cca gga « eu Pro Gly l	ota 5712 Pro
60)	gac tta ctg Asp Leu Leu 1905	Thr Val A	ga sag te: rg Lys Se: 10	: Sly Val	syc cya a Ser Arç T 1915	og cac tot : hr Hiz Ser : l'	otg 5760 Leu 920
	www.aat gac	rago tao a	to tot co	i cat add	agt act g	දෙද මුත්ම මුල්ල අ	pec 5808

PCT/US98/23161 WO 99/29847 Q

	Fig Asn Asp Ser Tyr Mer Cye Ard Bie Gly Ser Thr Ala Gio Gly Pro 1925 1930 1930	
<u>.</u>	Ctg ggs dan agg ggc tgg ggg ctc con sam get cag tom ggc tot gtc Leo Gly His Arg Gly Trp Gly Leo Fro Lym Als Gln Ser Gly Ser Val 1945 1950	\$\$56
10	ttg too get can ten may one goe get eve ago tan abo ong mag ort Led Ser Val Ris Ser Gin Pro Ala Asp Thr Ser Tyr Ile Leu Gin Leu 1955 1960 1965	3904
15	COC 484 Get goa set cat cig cic cag coc cac age god cra acc tgg Fro Lys Asp Ala Pro Nix Leu Leu Gin Pro Nis Set Ala Fro Thr Trp 1970 1975 1980	\$\$\$2:
	ggc and atd doc ass sty doc tos one ggs ogd for out tty got day Gly Thr Ile Pro Lys Leu Pro Pro Bro Gly Arg Ser Pro Leu Ala Glh 1985 1990 1995 2000	8000 : :
20	agg coa cto agg cgr cag gos gos ats agg act gar too ttg gac gtt Arg Fro Leu Arg Arg Gin Als Ala Ile Arg Thr Asp Ser Leu Asp Vai 2005 2015	6048
25	Cag got ctg ggc agt tgg gas gac ctg ctg gca gag gtg agt ggg ccc Glo Giy Leu Giy Ser Arg Glu Aep Leu Leu Ala Glu Val Ser Gly Pro 2020 2025 2025	6096
30	too dog doe eng god ogg god tad tot the tog ggo dag toa agt add Ser Pro Pro Leo Ala Arg Ala Tyx Ser Phe Trp Gly Glm Ser Ser Thr 2035 2045	6144
35	cag gos cag cae the ego ago cao ago aag ato ton aag cao atg Glb Ala Glb Glb Hix Ser Arg Ser His Ser Lys Ile Ser Lys His Met 2050 2060	8192
and and	act duy dea gon est tge dea gge dea gaa sed aac tgg gge aag gge Thr Pro Pro Ala Pro Cys Pro Gly Pro Gle Pro Ass Trp Gly Lys Gly 2085 2070 2075 2080	6240
40	oot oos gag acc ags ago ago tta gag ttg gac acg gag ctg ago tgg Pro Pro Giu Thr Arg Ser Ser Leu Glu Leu Asp Thr Glu Leu Ser Trp 2085 2098	6288
45	att toa gga gan oto etg one oot ggo ggo cag gag eeg oo ooa too The Ser Gly Asp Leu Leu Pro Pro Gly Gly Glo Glu Glu Pro Pro Ser 2100 2105 2110	6336
50	cca cgg gac ctg aag aag tgc tac age gtg gag gcc cag age tgc cag Pro Arg Asp Leu Lys Lys Cys Tyr Ser Val Glu Ala Gln Ser Cys Gin 2115 2120 2125	6388
in m	CGC CGG CCL acq tcc tqq crq get geg ceg egg age can tot stc gcc Arg Arg Pro Thr Ser Trp Leu Asp Glu Gin Arg Arg His Ser lie Ale 2130 2140	6432
33	gto ago tgo oty gao ago ggo ree caa coo cao oty ggo aca gao coo Val Ser Cys Leu Asp Ser Gly Ser Gin Pro His Lee Gly The Asp Pro 2145 2150 2160	6480
60	tet mac ett ggg gge bag eet ett ggg ggg ook ggg mge egg see mag Ser Asn Leu Gly Gly Gln Pro Leu Gly Gly Pro Gly Ser Arg Pro Lys 2165 - 2176 - 2175	6528
	aaa aaa ctc age eeg oot agt atd aco ata gao cco ooo gag ago cas	6576

	bya bys bes Ser Fro Bro Ser lie Tor lie Asp Sto Fro Sin Ser Sin 2180 - 2185 - 2180	
3	gyt dat ogg sop odg odd agd den gyt atd tyd otd ogg syg syd got - 8624 Diy Fro Arg Thr Pro Pro Ser Pro Diy Tie Cys Leu Arg Arg Arg Ale 2195 - 2200 - 2205	
10	ong teo ago quo too aag get oor tig gen tot ggo oon oot gan ago - 9672 Pro Ser Ser Asp Ser Lys Asp Pro Leu Ala Ser Gly Pro Pro Asp Ser 2210 - 2215 - 2220	
13	atg got doc tog toe tee eca aag aaa gat gig olg agt tit tee ggt 6720 Met Ala Ala Ser Fro Ser Fro Lye Lye Aap Val Leu Ser Leu Ser Gly 2225 2230 2235 2240	
	tta ton tot gac coa goa gac etg gac ece 6750 Leu Ser Ser Asp Fro Ala Asp Lea Asp Pro 2245 2250	
20	<210	
25	<213> Homo espiens <220> <221> CDS	
30	<222> (1). (6783) <400> 2 atg gar gag gag gat gga gcg gcc gag gag tog gga cag coc 48 Met Asp Glu Glu Asp Gly Ala Gly Ala Glu Ser Gly Gln Pro	
33	l S 15 pgg ago the atg egg etc aac gas etg teg ggg ges ggg egg eeg 98 Arg Sar Pha Mar Arg Lau Asn Asp Lau Sar Gly Ala Gly Gly Arg Pro	
40	25 30 ggg con ggg toa gea gan ang gan con ggn ann gen gan ten gan gch 144 Gly Pro Gly Ser Ala Glu Lys Ann Pro Gly Ser Ala Ann Ser Glu Ala 35 40 45	
45	gag gag stg ses tas esg geg etg ges esg gtg gtt tts tts tes tig 192 Glu Gly Leo Fro Tyr Pro Ala Leu Ala Pro Val Val Phe Phe Tyr Leu 50 55 60	
చి కా	age cag yar age ege eeg egg age tgg tgt etc ege acg gte tgt aac 240 Ser Gln Amp Ser Arg Pro Arg Ser Try Cys Leu Arg Thr Val Cys Asn 65 70 75 80	
30	con ing the gag ego ato ago ato etc oft oft can have too gto 288 Pro Trp Phe Glu Arg Ile Ser Met Leu Val lie Leu Leu Ash Cys Val 85 90 95	
33	acc etg gge atg tre egg eea tge gag gae ate gte tge gae tee oag 336 Thr Leu Gly Met Phe Arg Pro Cys Glu Asp Ile Als Cys Asp Ser Gln 100 165 110	
60	ego tgo ogg ato otg oag geo tit gat geo tto ato tit goo tto tit 384 Arg Cys Arg Ile Leo Glo Ale Phe Asp Asp Phe Ile Phe Ale Phe Phe 115 120 128	
	gun gag gag atg gtg gtg asp atg gtg ged ttg ggd atd ttt ggg ass 432 Ala Val Giu Met Val Val Lys Met Val Ala Leu Gly lie Phe Gly Lys	

		130					133.					140					
Ĵ		Cys			Qly							gac Asp					480
10												caq Gin					528
733	tca Se:	got Ala	gto. Val	agg Arg 180	aca Thr	gro Vai	egt Arg	gtg Val	ctq Leu 185	cga Arg	ecq Pro	eta Leu	agg Arg	gcc Ala 190	att Ile	esc Asn	\$76
15				Ser								otg Leu					628
20			1.80			Val						ttc Phe 220					672
23	tto Phe 225	Gly	atc	gte Val	GJA.	gre Val 230	cag Sin	etg Leu	tag tag	gca &la	999 919 235	ctg	att Læu	egg Asy	sac Asn	ogs Arg 240	720
30	tgc Cys	t.tit Phe	cta Leu	pot Pro	gag Glu 245	Assi	fto Pho	agc Ser	oto Leu	000 Pro 250	ctg Løu	ag¢ Sex	gtg Væl	gaç Asp	ctg Lea 255	Glu gag	768
- See Park	aga Arg	tat Tyr	tac Tyr	caq 91n 260	aca Thr	gag Slu	aac Asn	949 614	gat Asp 265	gaç Çlə	ago Ser	Fro	etc Pbe	810 110 270	tge Cys	200 800	316
35	cag Gin	oca Pro	ogo Azg 275	Glu	aac Asn	giy ggc	atg Met	cgg Arg 280	800 800	tgo Cys	aga Arg	agc	gtg Val 285	pro	acg Thr	ctg Leu	884
40			437									Cig Leu 300					912
45	tac Tyr 305	A30	agc Ser	tee Ser	agc Ser	aac Asn 310	acc Thr	ode ref	tgt Cys	gtc Val	aac Asn 315	tyg	aac Asn	caq Gin	tac Tyr	tas Tyr 320	7960
50												sag Lys				aac Asn	1008
alise yell	itt Phe	qec Asp	aac Asn	att Tie 340	Gly	tat Tyr	goc Ala	tgg Trp	ato Tle 345	Ala	ato lie	tto Phe	cag Gin	gtc Val 350	atc lie	acg Thr	ipse
55	ztg Lep	gag Glu	990 Gly 355	tgg Trp	gtc Val	gac Asp	ato Ile	atg Wet 360	tac Tyx	ttt Phe	gtg Val	atç Met	gat Asp 365	got Ala	cat His	tac Ser	1104
60	ttc Phe	tac Tyr 370	880	ttc	atc Ile	tac Tyr	ttc Phe 375	ile	oto Leu	ete Lea	stc Tle	atc Ile 380	V3.	613 613	toc Ser	tto She	iisz
																gag Glu	1205

PCT/US98/23161 WO 99/29847 12

	385					350.					333					400	
	act Thr	aaq Lys	cag Gln	egg Arg	008 310 405	ege Ser	cag Sin	etg Leu	atg Met	coo Arq 410	870	Ceg Sin	cgi. Arg	gig Val	099 Arq 413	tt: Phe	1248
10	ctg Leu	tee Sex	aac Asn	gto Ala 120	ago Ser	ecc Thr	erg Leu	gon Ala	agc Ser 425	tto Phe	tot Ser	Glu	668 920	430 817 885	agç Ser	tgc Cys	3298
3.73	tat Tyr	610 989	989 510 435	etq LeC	oto Lec	aag Lys	tac Tyr	otq Leu 440	gtg Val	eac Tyr	ătc Xie	sti Leu	cat Arq 445	aag Lya	gca Ala	gcc Ale	1344
35		agg Arg 450	otg Leu	got Ala	cag Sin	gto Val	tot Ser 455	egg Arg	gcs Ala	gca Ala	ggt Gly	gtg Val 460	Äxg	gtt Val	013 344	etg Leu	1392
20	ot c Leu 465	agd Ser	agc Sex	cca Pro	gça Alə	000 Pro 470	ctc	gag Giy	CIÀ ââc	usq Gln	989 Glo 475	acc Thr	cag Gln	820 820	agc Ser	agt Ser 480	1440
23	age Ser	tge Cys	tot	yrd cdc	ter Sar 485	cac Nis	age Arg	ege Arg	Cta Leu	toc Ser 490	gto Val	cac Bas	cac Bis	otq Leu	gtg Val 495	Hix	3488
30	cac His	cac Bis	080 818	cac Mis 300	cat Mis	cac His	Cac Bis	cac Nis	tae Tyr 505	osc Sis	ctg Leu	G17 G17	eet Asn	210 213 333	acg	oto Leo	1838
entranti	agg Arg	gcc Ala	900 910 515	cgg Arg	gco Ala	ago Ser	Pro	gay Glu 520	atc	tag Gin	gac Asp	Arg agg	gat Asp 525	goo Ala	aat Asn	ggg Gly	3588
ĬĬ				oto Leu													3682
40	gcc Ala 545	coc	ast Pro	61y ggr	617 630	gca Ala 550	gag Glu	tot Ser	gtg Val	cac Bis	890 Ser 555	e co Phe	tac Tyr	cet Nis	gcc Ala	gec Asp S66	1688
45	tgc Cys	cac Nis	tta Leu	gag Glu	cca Pro 565	gtc Val	ogo Arg	Cys Cys	Cay Gln	gog Ala 570	ecc Pro	eet Pro	gsc	Arg	too Ser 575	cca Pro	1729
50	tot Ser	gag Glu	gda Ala	tud Ser 580	Gly	agg Arg	act. Thr	atg Val	ggc Gly 585	ago Ser	gly ggg	lys Lys	ata Val	tat Tyr 590	oca Pro	acc Thr	1776
en en	gtş Val	cac His	acc Thr 595	agc Ser	ect Pro	cce Pro	ocg Pro	gag Glu 600	acq Thr	crg	aag Lys	gaq Glu	aag Lys 605	gca Ala	cta Leo	gta Val	1824
35	gag Glu	gtg Val 610	grt Als	gcc Ala	agr Ser	ret Ser	999 Gly 615	pro	cca Pro	acc Thr	ott Leu	800 Thr 620	agc Ser	ctc Eeu	éét Azn	atc lle	1872
60	cca Pro 625	Fre	91 A 888	ord Prn	rac Tyr	890 881 830	koc Søk	atg Met	cac His	aag Lys	otq Leu 635	otg Lea	gaç Glu	aca Thr	cag Gln	agt Ser 640	1920
	aca Thr	ggt Gly	gcc Ala	cha pac	caa Gln	3e5	tot Ser	tge Cys	asg Lys	atc	t.cc Sex	agc	eet Pro	tga Cys	ttg Len	aaa Lys	1968

					643					6 88					655		
<u>.</u>	gca Als	gac Asp	Ser Ser	998 91y 660	gcs Ala	tgr Cys	era ed:	pro Pro	960 Asp 665	ayo Ser	tgc Cy*	opc Pro	Tyx	tot Cys 870	goo Ala	ogg Arg	5978
10										gac Asp							2064
3 (3	gac Asp	agc Sex 690	gag Slo	goa Ala	gtt Val	tet Tyr	gag Glu 698	rtc Phe	aça Tar	Gin	gat Asp	900 Ala 700	cag Gin	cac His	age Ser	gsc Asp	2232
15										ogg						gca Ala 720	2160
20	gag Glu	occ Pro	ego Ser	bet Set	gtg Val 725	ctq Leu	gee Ala	tto Phe	tgg Trp	egg Arg 730	ote Leu	atc 11e	tgt Cys	gac Asp	acc Thr 735	tto Phe	2208
25										gga Gly						gec Ala	2256
30	ato	ctq Leu	gtc Val 785	aac Ass	asa Thr	cte Leu	agc Ser	atg Met 760	ggc ggc	stc Ils	gaa Glu	tac Tyr	cac Ris 765	gaq Glu	cag Glb	pac Pro	2304
- 			1.80							agc Ser							2352
33										ctg Leu						ttt Phe 800	2400
40										tto Phe 810						gto Val	2448
45	sto Ile	agc Ser	gtg Val	tag Trp 820	gag Glu	stc Ile	gtg Val	ely	cag Gln 925	cag Gin	ej A aaa	Gly	ggs Gly	ctg Leu 830	teg	gtg Val	2496
50	ang Leu	cgg Arg	scc Thr 835	ttc	cgc Arg	atg Leu	abg Met	ogt Arg 840	gtg Val	ctq Leu	aag Lys	ct.q Leu	gtg Val 845	cgs Arg	घ उर्च क्रमंष	ctg Leu	2544
W.W.			1.8213					Val.		oto Leu			3,500			asc Asn	2592
. 55	Val	Ala								oto cel							2640
60	atć Ile										Pine					gat Asp	2688
																goc Ala	2736

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			900				303					93.0			
ij.	ato yto lie Vel	act The 915	gtc t Val 8	t cag ma Gln	akc Ile	otq Leu 920	acc Thr	009 617:	gag Glu	gas Asp	tgg Trp 925	880 880	888 Lys	gec Val	2784
10	sts tac Leu Tyr 930	Assis													2832
* 4	att ger lie Ala 945	ctc	atga Net T	oo tto u Phe 950	Gly ggc	aac Asn	tac Tyr	gtg Val	ctc Leu 355	eto Phe	aat Asn	ttg Leu	ctę leu	gtö Vai 960	2880
15	god att Ala Ile	ctq Leu	Val G	ag ggc la Gly 85	ttc Phe	cag Gln	god Ala	gag Glu 970	Gly	gat Asp	gcc Ala	aac Asu	880 Lys 973	rcc Ser	2928
20	gaa tos Clu Ser														2976
35	agg sag Arg Lys	aaq Lys 995	ton t Cys t	tg gec su Ala	1.80	gtg Val 1000	tee Sat	ceg Lea	gga Gly	Clas	cac Bi: 1005	ccq Pro	gag gag	crg Leu	3024
30	cgg aag Arg Lys 1010	aga Ser	ate c Leu L	eu Pro	cer Pro 1015	ete Leu	atc	ato	His	acq Thr 1020	gcr Ala	gcc Ala	aca Thi	ecc Pro	3072
Sec. Sec.	atg tog Met Ser 1025	ctg beu	coc a	1030 ys Ser 1030	Thr	agc Ser	acg Thr	$GT\lambda$	atg Leu 1035	ggc	gag Clu	gcg Ala	ઇ૭તે.	990 61y 1040	3120
35	cat gog Pro Ala			rg. The			Sec					820			3168
40	gcc cac Ala His	Glu	atg s Mei L (060	ag tya ys Ser	ceg Pro	220	agc Ser 1065	god Ala	ogo Arg	agc Ser	Ser	ccg Pro 1070	cac His	agc Ser	3236
45	ccc tgg Fro Try	agc Ser 1075	gct g Ala A	ca ago la Sec	Ser	tgg Trp 1080	acc Thr	age Ser	agg Arg	Arg	tcc Ser 1085	ago Ser	cgg Arg	aac Aan	3264
50	ago sto Ser Leu 1090	ggc Gly	tgt g Arg A	oa coc la Pro	agc Sex 1095	etg Lea	aaq Lys	egg Arg	Arş	egc Ser 1100	oca Pro	agt Ser	gga Gly	gaq Glu	3312
1784	ogg ogg Arg Arg 1105	toc Ser	cty t Leu L	tg tog eu Ser 1110	Gly	gee Glu	ely	030	gag Gig 1115	ago Ser	cag Gln	gat Asp	Glu	gag Glo 1120	3360
33	gag ago Glo Ser		Gau S				Ser					Asp		Arq	3408
-60	cac agg His Arg	$-CT\lambda$	too o Ser i 1140	tg gad en Gli	r Arg	Glu	goo Ala 1145	Lys	ayt Sor	tor Ser	8,003	qac Asp 1150	ctg Leu	Sto Ccs	3456
	gat ata Asp Thr	ctg Leu	cag o Gln V	tg com al Pro	ggg Gly	ctg Ley	cat His	cgc Arg	act The	gcc Ala	agt Ser	Gly	cga Arg	ggg	3504

	11.5 5	:	7.280	1163	
: ,\$.**	tot got tot na: Ser Ala Ser Sl: 1170	bac bag wac Hia Slo Asp 1175	tực sát gọ Cyc Asn Gi	r aag tog got to 7 bys Ser Ala Se 1186	a gag ogs 3552 r Sly Arg
10				o cos ong gat gg > Pro Leo Asp Gi 1195	
	god gat gad gag Ala Asp Asp Gh	gyc war otg Gly Asn Leu 1203	agr aaa gy Ser Lys Gl 121	g gas egg gto eg y Glo Arg Val Ar)	c gcg tgg - 3648 g Ala Trp - 1215
13		leo Fro Ala		o gag oga gat to u Glu Arg Asp Se 123	r Trp Ser
20	god bad ato tto Ala Tyr lie Pho 1235	- Pro Pro Gla	top ægg ti Ser Arg 9b 1240	o ogo oto otg to o Arg Leu Leu Cy 1245	t cae egg 3744 s Nis Arg
25	ats atc acc cad lie lie Thr His 1250	r aag atg tto Lys Met Phe 255	Asp Nis Va	g gtz ett gse at 1 Val Leu Val II 1260	o ato tto 3792 c lie the
30	ctt aac tgc at: Leo Asn Cys Il: 1763			o ccc eas att qs y Pro Lys lle As 1275	
	agt get gaa eg Set Ala Glo Art	reto tto oty : Ile Phe Leu 1285	acc sto to Thr Lea Se 129	r aat tac ato tt r Aso Tyr Ile 97 9	c acc yes 3888 m Thr Als 1295
3 5	gro tit cty go: Yal Phe Len Al: 130	: Glu Met Thr	gig aag gi Val Lys Va 1305	g gtg gca ctg gc l Yal Ala Leu Gl 131	y Trp Cys
40	tto gag gag cad Phy Gly Gle Gli 1315	ı Ala Tyr Leu	cqq agc ag Arg Ser Se 1320	t ton aac gtg ct r Trp Asn Val Le 1325	g gao ggg 3984 w Asp 61y
45	otg ttg gtg ct: Leu Leu Val Le: 1330	e sto too gto ; Ile Ser Val 1335	lle Asp II	t otg gtg tec at e Leu Val Ser Me 1340	g gto tot 403% it Yel Ser
50	gac ago ggc ac Asp Ser Gly th 1345	r aag att otg r Lys Ils Leo 1350	ggc atg ot Gly Met læ	g agg gtg ctg cg u Arg Val Leb Ax 1355	sg ctg ctg 4980 "g Leo Leo 1360
	egg acc otg cg Arg Thr Leu Ar	o dog oto egg ; Pro læw Arg 1365	gtg atc ag Val Ile Se 137	s egg geg cag ge r Arg Ala Gin G O	g ctg aag -4128 y Leu Lys 1375
.33°	cky yty yth ga Lew Yal Val Gi 138	; The Leu Met	ted toa ot . Ber Ser Le 1389	g ass coc stc go u Lys Pro Ile G 139	y Asn Ile
60	gta gte atc tg Val Val Nie Cy 1395	: Cys Ale Phe	tte ats at The Ile Il 1400	t tto ggo ato ti e Phe Gly Ile Le 1905	g ggg gtg 4224 au Gly Vel
	cag pup the as Gin Leu Phe Ly	s ggg ææg ttt s Gly Lys Pho	tic gtg tg Phe Val Cy	o say ggc gag g a Glo Gly Glu A	et acc agg 4272 Sp Thr Arg

16

	1410	1*15	1.420	
\$	sec stc acc ast Aso lie Thy Aso 1425	asa tog gad tg: Lya Ser Aep Cys 1430	goo gag goo agt tac Ala Slu Ala Ser Tyr 1435	cag tag att 4320 Arg Trp Val 1440
10	Arg His Lys Tyr		ott ggo cag god otg Leu Gly Gin Ala Lau 1450	
3.0		Ser Lys Asp Gly	tgg grg gac atc atg Trp Val Asp lle Met (466	
15	ctg gat got gtg Leu Asp Ala Val 1475	ggc gig yac cag Gly Val Asp Cin 1480	cay coo ato atg aac Oln Pro lle Met Asn 1485	cac aac coc 4464 His Ass Pro
20	tgg atg otg otg Trp Met Leu Leu 1490	tag tto ato tog Tyr Phe Ile Ser 1495	tto ctg ctc att gtg Phe Leu Leu lie Val 1900	ged tim tit 4512 Als Poe Phe
25	gtc ctp asc atg Val Leo Asn Met 1505	ttt gtg ggt gtg Phe Val Gly Val 1510	gig gig gag aac itc Vai Val Glu Ass Phe 1515	cac esg tgt 4560 His Lys Cys 1520
30	Arg Sin His Sin	gay gaa gag qeg Gin Gin Gin Gin 1525	gcc cgg cgg cgg gag Ala Arg Arg Arg Glu 1530	gay aag ogo 4608 Slu Lys Arg 1938
્રહ્યું કેટ		Glu Lys Lys Arg	ägg aat eta atg etg Arg Asn Leu Met Leu 1545	
35			get geg tea gas gee Ala Ala Ser Glu Ala 1565	
40			tto ogg etc ptc gtc Phe Arg Leu Leu Val 1580	
45	-Cys Thr Ser His		tto ato aca ggt gto Phe Ile Thr Gly Val 1595	
30			cac tac cag cag ccc His Tyr Gln Gln Pro 1616	
Marks.		Lys Ile Cys Asn	tac atc ttc act gro Tyr lie Phe Thr Val 1625	
3 3			goo tir ggt tio ogt Alæ Phe Gly Fhe Arg 1645	
60	cag gac agg tgg Gin Asp Arg Trp 1650	aac cag ctg gac Asn Glo Leu Amp 1655	cty que att gty cty Leu Ala lle Val Leu 1860	ctq two atc 4992 len Ser Ile
			gag gte aac gee teg Glu Val Asn Ala Ser	

	1965	4670		1680
5	Asn Fro Thr Die	ato ogo ato at Ila Arg Ila Mas 1685	g agg gtg otg cot a t Arg Val Les Arg í 1698	tt god oge gtg - 3398 le Ale Arg Val - 1695
10	ctg asg ctg ctg les lys ben Len 1700	aag atg get gt: Lys Met Ala Va	g ggc etg ogg geg t i Sly Met Arg Als L 1705	tg otg gar acg - 5136 eu Leu Asp Thr - 1710
10	gtg atg cag god Val Met Gln Ala 1715	ong occ cas grabes from the Single Pro Gin Va.	g ygg asc cig gga t 1 Cly Asn Leo Gly L 0 17	su Leu Phe Met
15	ttg ttg tti tis Leu Leu Phe Phe 1730	ato tit gea go The Dhe Ala Ali 1735	t ctg gac gtg gag c ø beu Sly Val Glu b 1740	to tit ggs gad 1232 eu Phe Sly Asp
20			c tgt gag ggc stg g o Cya Gla Gly Les S 1755	
23 23	Thr The Arg Ash	ttt ggc atg go Phe Gly Met Al. 1765	c tro pra apc oto t a Pha Leu Thr Leu P 1770	to ogå gto tod 1328 hø Arg Val Ser 1775
30	ece ģgt gac aat Thr Gly Asp Asn 1780	tigg aat ggc at Trp Asn Gly li	t atg asg gac acc c e Met Lys Asp Thr L 1785	to ogg gad tgt - 5376 eu Arg Asp Cys - 1790
es es			c acg gtc atc tog c n Thr Val lle Ser P n 18	ro lie Tyr Phe
35	gty too tto gtg Val Ser Phe Val 1810	otg acg god ca Leu Thr Ala Gi 1815	g tts grg sia gic a n Phe Val Leu Val A 1820	ac gtg gtg atc 5472 sn Vai Vai Ile
40	gno gtg ctg atg Ala Val Leu Met 1825	aag cac ctg ga Lys Als Lee Gi 1830	g gag agc eac eag g u Glu Ser Asn Lya G 1835	ag god sag gag 1520 lu Ala Lys Gio 1840
45	Gla Ala Gla Lev	gag got gag ot Giu Ala Giu Le 1845	g gag otg gag atg a u Glu Leu Glu Met L 1850	ag acc oto ago 5568 ys Thr Leu Ser 1855
50			c ago can the etc t y Ser Pro Phe Leu T 1865	
			c cec way ect ggg g r Pro Lys Pro Gly A G 18	la Leu His Pro
55	gog god dad gog Ala Ala His Ala 1890	aga toa goo to Arg Ser Ala Se 1895	c cac tit too sig g r His Phe Ser Leu G 1900	ag car rec acy 5712 lo Bis Pro Thr
60	atq caq coc cac Met Gin Pro His 1905	occ acq gag ot Pro Thr Glu Le 1910	g coa gga coa gac t u Pro Gly Pro Asp l 1915	ta ctg act gtg 3760 eu bed Thr Val 1920
	tgg asg tet ggg Arg Lys Ser Gly	gro ago ogs se Val Ser Arg Th	g cas ret etg eec a r His Ser Leo Pro A	et gec ago tao 5808 sn Asp Ser Tyr

	1925	1330	
	atg tgt cgg per ggg agd adt Met Cys Arg His Gly Sex Thr 1940	gut gag ggg coc oty Kia Gio Giy Pro Leu 1945	gga car ago ggo 5856 Gly has Ary Sly 1950
10	Tyg gyg ett cop aaa get cas Trp Gly Leu Pro Lys Ala Glo 1958	Ser Gly Ser Val Leu	toc gtt sec toc - 5904 Ser Val His Ser 1965
	cay coa gos gat acc ago teo Gin Pro Ala Asp Thr Ser Tyr 1970 1975	lle Les Gin Leu Pro	asa gat gos cot 5952 Lys Asp Ale Pro
- 15 ;	cat sig oto cay see car age His Leo Leo Sin Pro His Ser 1985 1990		
20	ctg ccc cos cce gga tgt tet Leu Pro Pro Pro Gly Arg Set 2005	ert ttg grt eag agg Pro Leu Ala Glo Arg 2010	oca ote agg ogc 6048 Pro Leu Arg Arg 2015
25	cag gos gos ata agg sot geo Gin Ale Ala Ile Arg The Asp 2020	too ing geo git cag Ser Leu Asp Val Gin 2025	ggt otg ggc agc 6096 Siy Leu Giy Ser 2030
30	vgg gaa gad dig dig gea gag Arg Slu Asp Leu Leo Ala Slu 2038	Val Ser Gly Pro Ser	eeg eec etg gee - 6144 Pro Pro Leu Ala 2045
	ogg god tad tot tte tgg ggd Arg Ala Tyr Ser Phe Trp Gly 2050 2055	Gin Ser Ser Thr Glo	gos cag cag cac 6192 Ala Gin Gin Hie
33	tot oge age tat age aag ate Ser Arg Ser His Ser Lys Ile 2065 2070		
40	tyc cca ggz cca gaa coc aac Cys Pro Gly Pro Glu Pro Asn 2085	tgg ggc aag ggc oct Trp Gly Lys Gly Pro 2090	cce gag acc age 6298 Pro Giu Thr Arg 2095
45	and ago the gag tig gad acg Ser Ser Leu Glu Leu Asp Thr 2100	gaq otg ago tgg atr Glu Leu Ser Trp Ile 2105	toa qqa qac oto
50	ctg see set ggs ggs sag gag Leu Pro Pro Gly Gly Gln Glu 2115	Glu Pro Pro Ser Pro	ogg gad otg aag - 6389 Arg Asp Leu Lys 2125
	aag tgo tac ago gtg gag goo Lys Cys Tyx Ser Val Glu Ala 2130 2135	. Sin Ser Cys Gin Arg	Arg Pro Thr Ser
33	tgg ctg gat gag cag agg aga Trp Leo Asp Slu Gin Arg Arg 2145 2150		
60	ago ggo too wax ood cao chg Ser Gly Ser Gln Pro His Lev 2165		
	cag cot off gog ggg cot gag Gin Pro Les Giy Gly Pro Gly		

10

	2180		2135	23,99 5	
5	cot agt ato acc at Pro Sar Ile Thr Il 2195	a qar dot tot e Kap Pro Pro 2200	o Gla Ser Gla	ggt cot ogg asc : Gly fro Arg Thr : 2205	00g 8628 850
	occ age cot ggt a: Pro Sar Pro Siy 11 2216		, Arg Arg Ala		
10	aag gat oon tig go Lys Asp Pro Leu Al 2223	u ter ggo coo a Sar Gly Pro 2233	cor qad age Pro Asp Ser 2835	Met Ale Rie Ser	000 - 6728 Pro 248
13	tou coa sem ass ga Ser Pro Lys Lys As 224	t Val Leu Ser	i ste tod ggt Leo Set Gly 2250	tta too tot gao Lau Sar Sar Asp 2255	50a 6766 Pro
20	gua qeo org gac oc Ala Asp Leu Asp Fr 2260				6783
25 -	<210> 3 <211> 680: <212> DNA <213> Numo Sapiens				
30	<220> <221> CDS <222> (1)(6804)				
35	<400> 3 atg gac gag gag ga Met Asp Glu Glu Gi 1	g gat gga gco u Asp Gly Ala S	ggc gcc gag Gly Ala Glo 10	geg tog gga cag Gla Ser Gly Gln 15	000 48 9ro
40	ogg ago fto atg og Arg Ser Phe Met Ar 20	g oto aso gad g lav Aso Asp	cty top gag : Leu Ser Dly 25	god ggg ggg agg Ala Gly Gly Arg 30	coy 36 Fro
43	gag ccg gag tca go Gly Pro Gly Ser Al 35	a gaa aag gad a Glu Lya Aag 40	o Pro Gly Ser	gcy gas tos gag Ala Asp Ser Glu 45	gog 144 Ala
	gag ggg ctg cog ta Glu Gly Leu Pro Ty 50	e sog gog etg r Pro Ala Las 55	; ecc ccg gtg : Ala Fro Val	gtt tto tto two Val Phe Phe Tyr 60	ttg 192 Leu
50	agt cag gar age og Sar Gln Amp Ser Ar 63				
.55	cec tog the gag of Fre Trp Phe Glu Ar 8	o ato ago ato g ile Ser Met S	g ttg gtc atc t Leu Val Ile 90	ett etd mae tge Leu Leu Asn Cys 95	gtg 288 Val
80	acc sty ggs atg to The Lau Gly Met Ph 100	o zgo dos tg: e Arg Pro Cy:	o gag gad atc s Glu Asp Ile 105	gan tực gao tro. Ala Cys Asp San 110	cag 330 Gin
	ego tgo ogg ato og Arg Cyr Arg Ila Le 115	g zág god ttr G Gin Ála Pho 12:	e Asp Asp Phe	att til goo tto lie Phe Ala Phe 123	bro 384 Phe

*5	ges Ala	gto Val 130	gag Slu	atg Wet	323 Val	gtq Val	337 Lys 135	atq Vet	grg Val	Ala gov	119 Lev	990 519 140	aiz Ile	etc Sha	01 % 334	aaa Lys	\$\$\$
	940 Lys 145	byt. Cys	yyr Sac	org Leu	ety ggs	gec Asp 150	act Tox	taa Tip	aac Aso	ogg Arg	ett Løu 155	985 889	5 X X 8 5 8	tto sns	atc Zis	wtc Vai 160	460
10	ato Ile	gca Ala	21 Å 333	atq Met	otg Leu 165	gag Glo	Tyr cac	ttg Ser	ccg Lea	980 Asp 170	cca Leo	020 010	aac Ass	yai gre	agc Sør 175	tto Phe	526
IJ	tos Ser	got Ala	gt: Val	aqq Arq 180	ece The	gto Väl	ogt Arg	gtg Val	etg Led 185	Arg	osq Pro	ere Løu	agg agg	300 Ala 190	att lle	eec Asn	\$ 7 \$
20	cgg Arg	gtg Val	ccc 8ro 195	agc Ser	atg Set	ege Arg	stc Tie	500 Fen act	gto Val	aog The	ttg Leu	ctq Lea	otg Les 205	gat Asp	acg The	ctq Leu	\$2.4
25	ece Pro	atg Met 210	ccg Leu	GTA ddc	asc Asn	gtc Yal	cig Lea 218	atg Leu	ozo Leu	tgo Cys	ttc Phe	220 220	gtc Val	ttc Phe	tto Phe	at: Ils	\$7.5°
		ûly		A91 å20													720
30	CA2 pdc	t to	cta Leu	626 Cot	gag Glu 245	aat Asn	pro Phø	ago Ser	ctc Leu	000 910 250	crg Leu	agc Ser	gtg Val	gac Asp	arg Leu 255	gag Glu	3.58
35	ege Arg	tat Tyr	tac Tyr	cag Glo 260	aca Thr	gag Glu	aac Asn	gag Glu	gar Asp 265	gag Glu	açç Sər	ecc 2ro	tro Phe	310 114 270	Cys	too Ser	916
40	caq Gln	eca Pro	cgc Arg 275	Glu Glu	aad Asn	Gly Ggc	atq Met	cgg Arg 280	Ser roo	tgc Cys	aga Arg	agc Ser	gtg Val 285	820 820	acq The	bec Lec	864
43	Arg	590 617 999	Asp	Gly	GTX aac	GTÅ ååç	gge Gly 295	Pro	oct ors	CAa £3c	Gly	ctg Leu 300	gac Asp	tat Tyr	gag Glu	gcc Ala	912
	rac Tyr 305	aac Asn	ago Ser	taa Sér	390 382	aac Asn 310	acc Thr	acc	tgt Cys	gtc Val	aac Asn 315	tgg	aac Ass	cag Gin	tac Tyr	tec Tys 320	960
50	acc Thr	asc Asn	tgc Cys	tea Ser	gcg Ala 325	214 684	gag Slu	cac His	aac Asa	ccc Pro 330	ttc Phe	aag Lys	Gly	goc Ala	sto Ile 335	asc Asc	1008
33	ttt Phe	gac Asp	aac Asn	ett Ile 340	ely	tat Tyr	que Ala	tgg Trp	stc 11e 3#5	gcc Ala	ato Ile	tto ene	cag Gin	gro Val 350	118	acg Tbr	1056
60	ctş Leu	gag Glu	ggc Gly 355	Trp	gra Vai	gac Asp	ato Ile	atş Mət 360	tac Tyr	tt: Phe	gtg Val	alq Met	get Asp 365	got Ala	cat Nis	too Ser	3104
	ttc Phe	tac Tyr 370	Asn	t to Phe	ard Tle	cac Tyr	tto Phe 373	11.6	oto Leu	oto Leu	ato	ato Tia 380	Val	617 830	200 341	t to Pha	1223

5 °.	tto Phe 385	879 879	att Ile	aac Aso	ölg Läu	390 Cys cgc	00g Leu	gig Val	AWI GIĞ	877 [[8	gcs Als 395	acq Thr	ca; Olc	5.4# 2.23	roe Ser	gag 514 480	1200
ie.	ecc The	Lys Lys	ceq Gin	ogg Arg	983 61u 465	agd Set	pag Slo	sty Leu	atg: Met:	733 Arg 415	gag Glu	cag Gin	eat	A#1 313	412 913 913 034	t to Phe	2248
10	crg Leu	too Ser	880 888	900 Ala 420	agc Ser	acc Thr	rtg Leu	ott Als	agu Set 425	zzc Zhe	rar Ser	gag Gla	cot Pro	930 Gly 430	390 382		1296
Įj	tat Ty:	Glu Glu	9ag Glu 435	ong Leu	ren ccc	aag Lys	tad Tys	ctq Led 440	AZT Ara	tec	etc Ile	ctt Leu	795 Arg 445	asq Lys	gca Ala		1344
20	ege Arg	agg Arg 450	ctq Leu	ger Ala	caq Sla	gtc Vai	tot Ser 455	Asg Ogg	gca Ala	oca Ala	Gly ggt	gto Vai 460	ogg Arg	gtt Val	ej	ctg Leu	1392
25	crc Leu 465	agc Ser	agc Ser	cca Pro	gca Ala	000 820 470	atc Leu	Gly Gly	GIA adu	cag Sin	gaç Glu 475	auc Thr	caq Glo	occ Fro	Sex	agc Ser 480	1440
	agc Ser	tga Cys	tet Ser	ogo Arg	toc Ser 485	cac His	Yrd các	cąc Arg	cta Leu	toc Se: 490	gtc Val	cac His	cac His	etq Lau	gtg Val 495	osc His	1488
30	cac Kis	cac His	cac Nis	0ac Mis 500	cat His	cac His	cac His	osc His	tac Tyt 505	cac ais	otg Leu	G1 y	aar Aso	999 619 510	acq Thr	ctc Leu	1536
33	agg Arç	gcc Ala	000 8x0 515	Arg	gcc Ala	age Ser	ecg Pro	gag Glu 520	atc Ile	ceg Gln	gac Asp	agg Arg	gat Asp 523	gcc Ala	aar Aso	81À aaa	1588
40	bec Ser	cgc Arg 330	agg Asg	ctc Leu	acç Mer	ctg Leu	008 720 538	oca Pro	acc Rro	tog Ser	acq Thr	opt Pro 540	gcc Als	otc Lev	tot	ggg Gly	1632
43	gcc Ala 545	ccc	Szo.	Gly	ggc	gça Ala 550	gag Glu	tet Set	yal gra	cac His	agc Ser 555	ttu Phe	tec Tyr	cat His	gsc Ala	980 Asp 560	1680
्र¥	tgc Cys	cac His	tta Leu	gaq	cca Pro 568	gto Val	ege Arg	t go Cys	caq Gin	909 Ala 570	ccc Fro	8.20 001	ene Pro	agg Arg	tee Ser 579	ces Pro	1728
<i>30</i>	tot Sex	gag Glu	gca Ala	toc Ser 580	SLy	Arg	act Thr	grg Val	990 6ly 585	Sex	GIA	aaq Lys	gtg Val	tat Tyr 590	8,00	scc Thr	1776
33	Val Val	cac Sis	acc Thr 595	Sec	Pro	Pro	ccy Pro	gag Glu \$00	acq Th:	ctq Leu	Lys	Glu Glu	aag Lys 605	Alla	cra Leo	qta Val	1824
60	gag Glu	Val Val	A.1.18	gcc Ala	agc Ser	101 382	939 613	ಕ್ಟಾ	Pro Pro	acc Thr	CCC Leu	SZO Ehr soc	262	ctc Lau	raac Rap	atc lle	1871
	008 Pro 625	800	: Gly	oec Pro	tac Tyr	630 Ser agc	567	ato Met	c dad Mis	asq Lys	erg Les 635	ી.છા	gaç Glu	ana Thr	osq Oln	aqt Ser 640	1900

	#C# Tht	ggt Siy	goo Ala	tgo Cys	024 Gin 643	age Ser	\$ 27 \$82	tar Cys	aaq Lys	apc Ilw 650	720 8#2	##C S###	587 502	igo Dys	113 181 888	aaa Lys	1988
in.	gca Ala	980 880	agc Ser	990 617 660	gos Ala	tgt Cys	gat gat	32.0 20s	gac Asp 665	agc Sex	tga Cya	ane Pro	AÁZ H®D	tg: Cys 670	900 Ala	agg Arg	3018
10	gcc Ala	era aaa	gda Ala 675	ggg Gly	gag 614	gtç Val	gag Glu	cte Leu 680	goc	gac Asp	ngt Arg	gaa Glo	aig Mat 583	18,000°	gar Asp	cca Ser	20 6 4
13	gac Asp	agt Ser 890	gag Glu	goa Ala	get Val	tat Tyr	989 Giu 695	stc Pha	aca Thr	cag Gin	gat 839	gat Ala 700	caq Gir	cac Eta	895 Sec	gaç Asp	\$118 -
20	ctc Leu 705	ogg Arg	gac Asp	gro	can His	aqc Set 710	ogg Asg	agg Arg	cas Gln	egg Arg	age Ser 715	Leu	ery ery	oca Pro	gat Asp	gca Als 720	2160
23	gag Glu	aca Pro	890 380	tct Ser	gtg Val 725	ctg Lea	gac Ala	rte Pas	tgg Trp	agg Arg 730	nra Leo	ato Ile	tgt Cys	gac Asp	asc Thr 738	TIC Phe	2208
	ega Arg	aag Lys	att Ile	gtg Val 740	gac Asp	ego Ser	PAs sed	rac Tyr	ttt Phe 745	Giy	Arq Arq	gga Cly	stc Ile	atg Met 750	Ile	god Ala	2288
30	atc Ile	tæu etg	gtc Val 755	aac Asn	aca Thr	stc Leu	agc Ser	atg Met 760	Gly ggc	ato Ile	gaa Glu	llar	cac Sis 765	gag Glu	caq Gln	ese Pro	2304
35	gag Glu	gaq Glu 770	atr Lea	acc	aac Asn	gcc Ala	cta Leu 775	gaa Glu	ato Ile	agc Ser	aac Aso	ato Ile 780	Val	tro The	acc	agc Ser	2352
40	ctc Leu 785	rrr Phe	gcc Ala	ctg Lea	gag Glu	stq Met 790	ctq Leu	cty Leu	aag Lys	otg Leu	ctt Leu 795	gtg Val	tat Tyr	ggt Gly	000 810	ttt Bhe 300	2400
43	G1 y	tac Tyr	ile	Lys	aat Asn 805	bro ccc	tac	aac Asn	att	tts Phe 810	gar Asp	ggt Giy	gto Val	att	gtç Val 815	gtc Val	2448
	arc Ile	ago Sex	gtg Val	tgg Trp 820	gæg Slu	atc Lie	gtq Vai	ggc	cay Gln 825	cag Gin	elà aaa	Gl y gga	gly ggc	ctg Leu 830	rog	gtg Væl	2496
<i>50</i>	Len	agg Arg	acc Thr 835	ttc Phe	egc Arg	stg Leu	arg Met	ogt Arg 840	Vell	ctg Leu	aag Lys	otg Læu	909 Val 845	cgc Arg	toc Phe	stg Leu	2544
5 5	pro	909 81a 850	Leu	cag Gln	Arg Cgg	cag Slo	ctg Lau 855	yal Yal	gtg Val	ren	net Met	850	The c	atq Met	gac Asp	aac Asn	2592
60	gtq Val 865	Ala	acc Thr	tto Phe	tgc Cys	atq Met 970	otg Leu	ctt Læu	atg Met	sts Lea	ttc Phe \$75	114	tto sd9	ato lie	222 669	agc Ser 380	2640
	arc 11e	ebg Leu	ggc Gly	atg Mar	cat His 833	Lew	Spe	678 638	tgc Cys	aeg Lys 890	26A	gcc Ala	rot Ser	989 810	000 Atg 345	gar Asp	2,686

	617 333	gāz Āsp	acc The	Sec Sec Sec	204 220	şar Asp	agg Arg	aag Lys	aat Asn 903	ttt Phe	gas Asp	tee	7.53 2.63	01:3 4eU 910	199	ged Ala	2736
	ato Ile																<u> </u>
10	zti Leu	730 730	A30	Cly Ggt	873 Mes	gsa Ala	000 Set 935	ecq Tht	tag Set	tcc 800	tgg Top	909 Ala 940	gri Ala	ett Løe	rat Tyr	ene ene	2832
15	att Ile 945	gad Ala	cec Leo	atq Met	acz The	11: 20: 35:0	et A ads	aac Asn	Tyr	grg Val	oto Leu 935	ttc Phe	aat Aan	ttg Leu	ctq Leu	atc Val 960	2880
20	geo Ala	act	org Leu	gtg Val	927 914 855	ej A čát	ttt Phe	cag Sin	aco Ala	989 618 970	ggs Gly	gat Asp	gcc Ala	aac Asn	229 Lys 975	ttc Ser	2928
25	gss Glu	tca Ser	gaq Glu	000 Pro 980	get Asp	ntd Phe	rrc Phe	nca Ser	000 Pro 985	Ser ago	Leu	gar Asp	gge Gly	990 990	G17 G40	gac Asp	2976
***************************************	agg Xrg	aag Lys	995 695	tgc Cys	reu coa	gos Ala	Leo	(DOO) Val Gra	boc Ser	atg Leu	gga Gly	CJ (3	cac His (005	Pro ccg	gag Glu	org Leu	3021
30	arg Arg cgg	aag Lys 010	agc Ser	ctg Lea	ctg Led	pro	oct Pro 1815	oto Leu	atr Ila	ile	818	acg The 1020	gcc Ala	gcc Ala	aca Thr	1200 1200 1200	3072
33	sto Met 1025	Ser			Lys					Gly					rea		3120
40	ggt Pro	gog Ala	tog Ser	Axg	ogo Azg L045	acc Thr	agr Ser	ago Ser	Sex	999 319 (050	tog Ser	gca Ala	gag Glu	810	999 919 1055	Ala geg	3168
45	gcc Ala	cac Xis	Glu	atg Met L060	eeg Lys	tça Ser	ecq ccq	200	agc Ser LD65	gcc Ala	ega Arg	age Sør	Ser	009 Pro 1070	cac Bis	agt Ser	3216
	\$10 \$20	rep	agc Sex 1075	got Ala	oca Ala	890 887	Ser	tgg Tip 1080	ecc The	agc Ser	agg	Arç	tec Ser 1085	ago Ser	Arg Cgg	aac Asn	3263
50	Sex				gca Ala	820					Arg						3312
55	1105 Arg 299	A. G	too Ser	ctq Leu	tog Lau	tog Sær Lilo	gga Gly	gaa Glu	Gly	Gin	gag Glu Lll5	agc Ser	caq Gln	gat Asp	GLU	989 Clo 1129	3360
60	gag	ago ser	tca Ser	Gitt	gag Glu 1125	gag Glu	ogg Arg	ger Ala	26.2	act Pro 1130	gcg Ala	erà ado	2er egt	ಸಿಕಳ	cat Mis 1135	ego Arg	3109
	cac Sis	agg Arg	GLY	tes Ses 1140	963 1480	383 333	299 309	619	900 Ala 1145	aag Lys	agt Ser	eaa Sør	800	gac Asp 1150	- ಓಡಚ	oca Pro	3456

3	gad aca cty day gty dos ggg ctg dat cg: act quo agt 990 cga 999 Asp The Lee Gin Val Pry Gly Lee His Arg The Ala Sar Gly Arg Gly 1155 - 1160 - 1165	3\$04
e e e e e e e e e e e e e e e e e e e	tot got tot gay cac cag gad ton ear got ear tog got the gog con Ser Ala Ser Glu His Gln App Cys Asn Gly Lys Ser Ala Ser Gly Ary 1170 1175 1180	3552
70	ong goo ogg goo ong ogg oot gat gac oot ova ong gat gan gan Lau Ala Arg Ala Leu Arg Pro Asp Asp Pro Pro Leu Asp Oly Asp Asp 1185 1190 1195 1208	3600
15	goo gat gac gag ggs aar ctg agc asa ggg gae cgg gtr cgc gcg tgg Ala Asp Asp Glu Gly Asm Leu Ser Lys Gly Glu Arg Vil Arg Ala Trp 1205 1210 1215	3648
20	ato oga geo oga ste set geo tgo tgo etc gag oga gas too tgg tes Ile Arg Ala Arg Leu Pro Ala Cys Cys Leu Glu Arg Asp Ser Trp Ser 1230 1225	3596
23	god tad atd the cet dot day tod ago the ego dhe oby by tot cad byg Ala Tyr Ile Phe Pro Pro Glo Ser Arg Phe Arg Leu Leu Cys His Arg 1235 1240 1245	3744
	atc atc acc can mag atg ttc gas cat gtg gts ctt gts ats ats tts lle lle Thr His Lys Met Phe Asp His Val Val Leu Val Ile lle Phe 1250 1255 1360	349%
30	ctr eac tyc atc acc atc gor atg gay cyc ccc eas att gac coc cac Lea Asn Cys lle Thr Ile Ala Met Glu Arg Pto Lys lle Asp Pro His 1265 1270 1280	3840
35	ago got gas ogo ato the otg aco one too aat tad ato the aco gos Ser Ala Glu Arg lle Phe Leu Thr Leu Ser Asn Tyr lle Phe Thr Ala 1285 1290	3888
<i>40</i>	gto tit org get gam arg ace grg mag grg gem org ggd tgg tgd Val Phe Leu Alm Glo Mer Thr Val Lys Vml Val Alm Leu Gly Trp Cys 1306 1305 1310	3936
<i>43</i>	tte gag gag cag geg tac etg egg age age egg aac geg eeg gae gag Pha Giy Glo Glo Ala Tyr Lau Arg Sar Sar Trp Aso Val Lau Asp Giy 1315 1320 1325	3984
	obg the greater are too ghe are gad att one greater and greater Leu Leu Val Leu Ile Ser Val Ile Asp Ile Leu Val Ser Met Val Ser 1330 1340	4032
50	Leu Leu Val Leu Ile Ser Val Ile Asp Ile Leu Val Ser Met Val Ser	4032
30 33	Leu Leu Val Leu Ile Ser Val Ile Asp Ile Leu Val Ser Met Val Ser 1335 1340 gan ago ggo aco ang ato ong ggo ang ong ago gng ong ong ong ong Asp Ser Gly Thr Lya Ile Leu Gly Men Leu Ang Val Leu Ang Leu Leu	
33	Leu Leu Val Leu Ile Ser Val Ile Asp Ile Leu Val Ser Met Val Ser 1335 1340 gan ago qgo aco ang ato org qgo atg org agg gtg org org org org Asp Ser Gly Thr Lya Ile Leu Gly Met Leu Arg Val Leu Arg Leu Leu 1345 1350 1360 orga and org ogo eco oto agg gtg atc ago org gog cag agg org ang Arg Thr Leu Arg Pro Leu Arg Val Ile Ser Arg Ala Glo Gly Leu Lya	4080

	cag sis the Asa ggg asg tit tit gig tgo cag ggn gag gab and agg Gin Lev Phe Lys Giy Lys Phe Phe Val Cys Gin Gly Gid Asy The Asg 1427 - 1415 - 1420	\$\$#Z
3	and atd add was and tog gad tgt got gag god agt two ogg tgg gtd Agn lie The Ash Lys Ser Asp Cys Ala Siu Ala Ser Tye Ary Itp Val 1425 1430 1435	4320
10	ogg man say ten aan tot gad eed olt ggo deg got dig ang bot olg Ang his bys Tyr Ann Phe Asp Ann Leu Gly Gin Ala Leu Mer Ser Leu 1445 1450 1450	4369
13	tto ytt tra god tee aag gat ggt tag gtg gad abd atg tad gat ggg Phe Val Leu Ala Ser Lya Asp Gly Trp Val Asp Ila Met Tyr Asp Gly 1460 1460	4418
20	ctq gar gre gre gre gre cag cag coc are and acc cac aac coc Leu Asp Ala Vel Gly Val Asp Gln Gln Pro Ile Met Asn His Ash Pro 1475 1480 1485	4464
25	tyg aty cty tan the ate tog tto ctg off att gro god tto ttt Trp Ret Leu Leu Tyr Pho Ile Ser Phe Leu Leu Ile Val Ala Phe Pho 1495 1500	\$5 1 2
	gto org asc stg ttt gtg ggr grg gtg gtg gsg ast ttc cac asg tgt Val Leu Asn Met Phe Val Gly Val Val Val Gls Asn Phe Bis Lys Cys 1805 1510 1815 1820	45.60
30	ogg cag cac cag gag gaa gag gag gcc cgg cgg	4608
33	cts cye aga ctg gag aaa aag aga agg egt aag gag aag cag atg get Leu Arg Arg Leu Slu Lya Lya Arg Arg Ser Lys Siu Lys Gin Met Ala 1540 1545 1880	4656
40	gat sta atm stg gas gat gta att got som ggs ago tea gtt ago gct Asp leu Met Leu Asp Asp Val fie Ala Ser Gly Ser Ser Ala 1888 - 1880 - 1885	\$704
45	gog toe gas got mag age ass out tac tac tot gan has not ogt Etc Ais Set Glu Ala Gln Cys bys Pro Tyr Tyr Ser Asp Tyr Ser Arg Pbe 1570 1575 1580	4752
Access .	ogg cho cho gho cac cac the hec acc ago cad had che the the Arg Leu Leu Val His His Leu Cys Thr Ser His Tyr Leu Asp Leu Phe 1585 1590 1595 1600	4800
30	ato aca ggt gto ato ggg ctg aas gtg gto aco atg gcc atg gag cac lie Thr Gly Val lie Gly beu Aso Val Val The Met Ala Met Glu Bis 1605 1615	4848
33	tac cay cay con day att cty gat gag gct cty and atc tyc med tac Tyr Gin Gin Pro Gin lie Leo Asp Gio Ala Leo Lys Iie Cys Asn Tyr 1625 1630	\$838
60	eto tto act gto ato itt gto try gay toe gto tro eee cat gtg god lie Phe Thr Val lie Phe Vei Leu Glu Ser Val Phe Lys Leu Vel Ale 1635 1640 1648	
	ttr ggr tre egt egg tte ttr eag gao agg tgg aac cag cig gan its Pha Gly Pha Arg Arg Pha Pha Gin Asp Arg Tro Ash Cin Lab Asp Lab 1888 - 1868	4992

	god att gig dig dig tod atd atg ggd atd acg dig gag gae atd gag. Ala The Vel Leu Leu Ser The Med Gly The Thr Leo Glu Glu The Giu 1665 1670 1680	5040
\$	gto san gen begint one att eac doc act att att ogt att att agg Val Aso Ale Ser Let Pro Ile Asn Pro Thr Ile Ile Arg Ile Met Arg 1683 1690 1695	8088
10	grg ofg ogs art goo ogs gfg ofg sag ofg ofg sag afg got grg ggc Val Leo Arg Tie Ala Arg Val Leo Lys bed Leo Lys Met Ala Val Gly 1700 1705 1710	\$13 *
13	arg ogg gog otg dig gad acg gog arg dag god otg coc tag gig gag Mer Arg Ala Leu Leu Asp Tho Vai Met Gin Aia Lau Pro Gin Vai Gly 1715 1720 1725	3184
20	aac ong gga ctt ord the ang the the the end the gea got ong Ann Leu Gly Leb Leu Phe Met Leo Leu Phe Phe lie Phe Ala Ala Leu 1730 1735 1740	\$232
25	ggc gtg gag ctc ttt gga gan ctg gag tgt gan gag aca cac ccc tgt Cly Val Glu Leu Phe Cly Asp Leu Glu Cys Asp Glu Thr His Pro Cys 1745 1750 1755 1760	5230
***************************************	yay yac etg gge egt gat gcc acc ttt egg aac ttt gge ang god nic Blu Gly Lau Gly Arg His Ala Thr Phe Arg Asn Phe Gly Met Ala Phe 1765 1770 1775	3328
30	cta and odd the ega gto the ama ggt gad ast tgg ast ggd att atg Leu The Leu Phe Ang Val Ser Thr Gly Asp Asn Trp Asn Gly Ile Met 1780 1785 1790	5376
35	asy yet acc one ogg get tot get dec eeg geg tot act too tac asc acc Lys Asp Thr Leu Arg Asp Cys Asp Glu Glu Ser Thr Cys Tyr Asc Thr 1795 1800 1805	5424
40	gto ato tog oct ato tan tit gtg too tto gtg org ang gcc cag tto Val Ile Ser Pro Ile Tyr Phe Val Ser Phe Val Leu Thr Ala Gin Phe 1810 1815 1820	5472
45	grg cta gro aac grg grg acc goc grg crg arg aag cac crg gag gag 'Vai Leu Val Asn Val Vai lie Ala Val Leu Met Lys His Leu Giu Glu 1825 1830 1835	220°
	ago aec aag gag qoc aag gag goc gag ota gag got gag otg gag Ser Ash Lys Giu Ala Lys Giu Giu Ala Giu Leu Giu Ala Giu Leu Giu 1845 1850 1855	5569
30	ctg gag stg amg acc etc age occ cag cec can teg eca etg ggc age Leu Glo Met Lys Thr Leu Ser Pro Gln Pro His Ser Pro Leu Gly Ser 1860 1865 1870	5616
33	poor the ote tag cet aga ate dag age ees dae age eee dae age eee Pro Phe Leu Trp Pro Gly Val Glu Gly Pro Aap Sar Pro Aap Ser Pro 1875 1880 1885	\$ \$ \$ \$ \$ \$
60	aaq oot ggg get etg eac oos geg ged dad geg aga tes ged tes sad Lys Pro Gly Ala Leu His Pro Ala Ala His Ala Arg Sar Ala Sar Bls 1890 1891 1900	8712
	ttt too otg gag can one acg atg cag too can one acg gag ctg coa Phe Ser Leu Glu Bis Pro The Net Glo Pro Bis Pro The Glu Leu Pro 1905 1910 1925	5760

× .	ggs ccs gad tra try act gtg cgg eag tot god ott agn cgs acg dan Gly Pro Asp Leu Leu Thr Val Arg Lyx Sar Gly Val Sar Arg Phr His 1923 1930	2838
.	tor org our eat gar ago rac any rgr ogg cat ggg ago ant gur gar. Ser Leu Pro Aso Aso Ser Tyr Met Cyw Arg His Gly Ser Tor Ale Glu 1940 1945 1950	
10	ggg bod ong gga cal alg ggo ngg ggg ond dod awa got bag toa ggd Gly Pro Leu Cly His Ang Gly Trp Gly Leu Pro Lys Ala Gln San Gly 1955 1960) 1965	5504
Iž	tod gto tog tod gto cad tod dag dos gos get sod sgo ted sto otg Ser Vsi Leu Ser Vsi His Ser Gln Pro Ala Asp Thr Ser Tyr lle Leu 1970 - 1975 - 1980	3982
20	cag ctt one eas get goe oot oat org ôto oag ood oad agd god oos Gin Leu Pro Lys Asp Ala Pro His Leu Leu Glo Pro His Ser Ala Pro 1985 1990 1995 2000	5000
25	act tgg ggc ace ato doc eas ctg dec eca cca gga egt tee ect ttg The Trp Gly The lie Pro Lys Leu Pro Pro Pro Gly Arg See Pro Leu 2005 2010 2015	6048
	get cag agg cca etc agg ogc cag gca eta agg ett gas tos ttg Ala Gln Arg Pro Leu Arg Arg Gln Ala Ala Tie Arg Thr Asp Ser Leu 2020 2025 2030	6096
30	gac gtt cag ggt ctg ggc agc cgg gaa gan ctg ctg gca gag gtg agt Asp Val Gln Gly beu Gly Ser Arg Glu Asp Leu Leu Ala Giu Val Ser 2035 2040 2045	6144
35	ggg ccc tet ceg can atg gcc cgg get tar tet tto tog ggs cag tra Gly Pro Ser Pro Pro Leu Ale Arg Ala Tyr Ser Pha Trp Gly Gla Ser 2050 2055 2060	6192
40	agt acc mag gra cag cag cac the ego ago cac ago aag ato too aag Ser Thr Gin Ala Gin Gin His Ser Arg Ser His Ser Lys Tie Ser Lys 2085 2070 2075 2080	6240
45	cac atg acc cog cos goc cot tgc cos ggo cos gas coc sar tgg ggo His Met Thr Pro Pro Ala Pro Cys Pro Gly Pro Glu Pro Asn Trp Gly 2085 2090 2095	6288
	asy ggo cot oce gag ach aga ago ago tha gag the gas and gag ote Lya Giy Pro Pro Glu Thr Arg Ser Ser Leu Glu Leu Aap Thr Glu Leu 2188 2118	6336
50	ago tog ant toe oge one our our out out oge oge one one out of our off off one of our out off off our out off	8384
33	coa tot oca ogg gas otg aag aag tgo tac ago gtg gag gos cag ago Pro Ser Pro Arg Asp Leu Lys Lys Cys Tyr Ser Val Glu Ala Gln Ser 2130 2135 2140	6432
60	tgo cag ogo ogg oot acy too tgo otg gat gag cag agg aga cas for Cys Gin Arg Arg Fro Thr Ser Trp Lau Asp Giu Gin Arg Arg His Ser 2145 2130 2155	8480
	ato god gto ago tgo org gad ago ggo teo caa cod dad dag ggd ada Ilm Ala Val.Smr Cym Leo Asp Smr Gly Smr Gln Pro Fin Lou Gly Thr 7165 2170 170	6528

4.J	gac Asp	ero.	Same	aa.c Asc 2180	ott Leu	21 A 334	G1Y ggd	Sin	183 910 cet	oti Lag	01X 383	399 32 y	Post	949 614 190	agt Ser	yrd cd3	3576
	800 800	Lysi	464 178 238	aaa Lys	ena Lea	ago Ser	Pro	000 Poq (200	agt Ser	ato lia	acc Thr	7.10	gac Asp 203	220 220	Pro Pro	gag Glu	8624
10	292	caa 51n 210	ggi Giy	820 000	gra ess	Thr	225	zzz Pro	age Ser	005 870	Sly	atc lle 220	tgs Cys	050 Leg	099 Aøg	agg Arg	*\$\$72 ·
13	agg Arg 2225	Ala								520					P.C.O.		6720
20	gac Asp			Ala	gee Ala 2245				Pro					7.80			6768
25			Lenia		202 800			Ala									6804
30	<210 <211 <217 <213	> 6 > 03	(A	sapis	ens:												
	<220 <220)> > CI	ŠŠ.														
33				(6723	9)												
	<222 <400 atg	2 (1 2 4 gac	d. gag	gag	9) geg Glu S	gat Asp	era aas	gcç Ala	C1À ãôc	gcc Ale 10	gæg Glu	gag Glu	tog Ser	213. 33a	caq Gis 15	ese Pse	48
35 40	<222 <400 atg Met 1	2 () 3 4 3 5 4 5 4 5 4 5 8 9 0	gaq Sic	gag 61u	gaq Glu	Asp ccc	GLy	Ala gac	ctq	Ale 10 tcg	ggg Glu	Giu	Ser 999	444 214	Gin 18 cgq	Pro	48
	<223 <400 atg Met 1 cgg Arg	12 () 980 Asp ago Ser cog	gag Sic Sic	gag Slu atq Met 30	geg Siu S	asp ctc Leu gaa	Gly sac Asn aag	Ala gac Asp gac	Sly sts	Ala 10 trg Ser	giy ggg Gly	gcc Als gcg	Ser 999 Gly gac	Gly Gly 30	Gis 18 cgq Arg	TEG TEG Pro	
40	<223 <400 atg Met l cgg Arg Gly	2 () 2 4 gac Aap agc Ber ccc Fro	cag gag gag gag gag gag gag gag gag gag	gag Slu atq Mer 30 tca Ser	geg Glu S cgg Acg	Asp ctc Leu gas Glu	Gly sac Asn aag Lys	Ala gac Asp gac Asp ac	Sly sty Leu 25 ccq Pro	Ale 10 tog Ser ggc Gly	Glu ggg Gly agc Sar	Giu gcc Als gcg Ala	Ser 999 Gly 9ac 45 ttc	Gly ggg Gly 30 coc Ser	Gin 15 cgq Arg gag Giu	usq pro geg Als	**************************************
40	<223 <400 atg Met l ogg Arg Gly gag Glu agc	2 () 2 () 2 () 2 () 2 () 2 () 2 () 3 () 3 () 5 ()	derice de	gag Slu arq Mer 30 tca Ser oce Pro	gag Glu 5 cgg Acg gsa Ala	Asp ctc Leu gas Glu ccq Pro	Gly asc Asn asg Lys gcg Ala 55	Ala gac Asp gac Asp ao ctg Leu	ctq Leu 25 ccq Pro gcc Als	Ala 10 trg Sex ggc Gly ccg ere	Glu ggg Gly age Ser geg Val	Giu gcc Ala gct Vai 60	Ser 999 Gly 9ac 45 ttc Phe	Gly ggg Gly 30 coc Ser tto The	Gin 15 cgq Arq gag Giu cac Tyr	ccg Pro gcg Ala tig Leu	344
40 45 50	c223 c400 atg cgg Arg cgg cgy gag cgu sgc ser 65	24 cate cate cate cate cate cate cate cate	gago etca galyo cra gas cra gas cra gas cra gas cra cra cra cra cra cra cra cra cra cra	gag Ser Ser Ser Ser Ser	geg Glu S cgg Acg gua Ala tac Tyr	Asp ctc Leu gas Glu ccg Pro ccg Pro	Gly asc Asn asq Lys gcq Ala SS oqq Arg	Ala gac Asp gac Asp otg Leu agc Ser	ctq Leu 25 ccq Pro gcc Als tqq Trp	Ala 10 trg Sex ggc Gly ccg erc tgs Cys	Glu ggg Gly age Ser geg Vel oto Leu 75	Giu gcc Ala gct Yai 60 cgc Arg	Ser Ggg Gly gac Asp 45 tto Phe ecg Thr	Gly ggg Gly 30 coc Ser ttc The gto Yal	Gin cgq Arq gag Giu cac Tyr tgr Cys	ccc ccc pro gcc Ala tcc Leu aac Asn 80	36

	ogo Arg	tga Cys	118 Arq 033	ato Zie	ren ori	tay Qir	got Ala	ttt Phe 120	gai Asp	gad Asp	ttt Phe	att Ile	tit Pna 125	goo Ala	125 856	tot The	<u> </u>
Ž	ggc Ala	gtg Väl 130	989 615	acç. Men	yal gog	Yai grg	sag Lys 135	atq Met	Ast Atâ	900 Ala	tey Ley	990 617 140	atz Tie	vili Boe	gly ggg	333 146	49 <u>0</u>
10	aag Lys 145	tgt Cys	two Tyr	ctů Led	773 319	gac Asp 130	sot Thr	tgą Try	aac Asn	ogg Arg	ort Les 155	gac Asp	ett Phe	ttc Phe	ato lle	gto Val 160	490
Ιš	atc Ile	gos Ala	ggg Sly	atq Met	ctg Led 165	gag Glu	tac Tyr	tog Set	beu Leu	980 Asp 170	dig Leu	Cag Gln	330 330	gto Val	agc Ser 175	tt: Phe	**************************************
20	tca Ser	got Ala	gtc Val	agg Arg 180	ara Thr	gtc Val	cgt Arg	gtg Val	otg Leu 185	ogs Arg	sog Pro	Lau	agg Arg	gco Ala 180	att Ile	aac Asn	376
and the				282						acq Thr						ctg Leu	\$23
25	eca Pro	atg Met 210	ctg Leu	ely aac	asc Asn	grc Val	ctg Leu 215	ctg Leu	cts Leu	CÀa pâc	ct.c Phe	stc Phe 220	gto Val	phe pro	tto eke	stc Ile	632
30	ttt Phe 225	Gly Ggc	ato Ile	gto Val	erà ado	gtc Val 230	caq Gin	otg Leu	igg Trp	gca Ala	999 61y 235	ctq Leu	Ctt Leu	tgg Arq	aac Aso	cga Arg 240	729
33	tgc Cys	tto	cta Leu	cot Pro	gag Glu 243	aat Asn	tto Phe	ser Ser	ctc	ecc Pro 250	ctg Leu	ago Ser	gtg Val	gac Asp	otg Leu 253	gæg Glu	768
40	ogc Arg	tat Tyr	tac Tyr	C49 C1n 260	aca Thr	989 910	aac Asc	gag Glu	get Asp 265	Glu	agc Ser	ecc Pro	ttc Phe	atc Ile 270	tga Cys	rou Ser	\$16
	oag Gin	gro	cąc Arą 275	Glu	aac Asn	ely ggc	atq Mer	egg Arg 280	raa Ser	tgd Cys	aga Arg	ago Set	gtg Val 285	pro	acg Thr	ctg Leu	964
45	cąc Arg	290 Gly 999	gac Asp	eja aaa	G] y ggc	ggt Gly	593 617 646	oca Pro	Sto	tgc Cys	ggt	ctq Led 300	gac Asp	rat Tys	Qlu gag	gce Ala	912
50										gtc Val							360
33	acc Thr	aac Asn	tgo Cys	008 Sæg	gcg Ala 325	erà aaa	gag Glu	cac His	860 880	330 \$10 ddd	ttc Phe	aag Lys	ggc Gly	gcz Ala	atc 110 330	aac Asn	1009
60	ttt Pha	gac Asp	aac Ass	att 11e 340	ggc	tat Tyr	gca Ala	rgg	310 310 345	gco Ala	acc Tie	the The	cag Gin	gtc Val 350	atc Ble	ecg Thr	1056
. 60 75	ctq Leu	gag Glu	ggc Gly 355	Tro	gto Väl	gac Asp	atu Ila	atq Mer 360	rac Tyr	err Pra	gtg Val	atq Met	gat Asp 368	got Ala	cat His	eoc Ser	210%

	ttu Phe	tás 172 370	aat Ass	TLC Fige	atz Ile	vac Typ	tta Pns 375	372 719	053 1844	22 244	ata Tie	ato 11e 390	#38 Væl	egy age	Sez	titic Phe	<u> </u>
3	tto Phs 385	atg Met	aic lle	aac Avn	ety Leu	tgc Cys 390	ctq Les	gtg Val	Asi Ari	att	900 Ala 395	acq	cay Sin	200	- 2000. - 2000.	ywy Giu 400	3200
10										cgg Arg 410							1248
15	otg Leu	rou Ser	aat Asn	geo Ala 420	ago Ser	acc Thr	arg Leu	gut Ala	agc Sec 425	tte Yhe	tat Ser	gag Glu	ecc Pro	438 617 884	aşı Ser	tqt Cys	1786
20							Tyr									gcc 31a	1344
	sgc Arg	aqq Arq 450	otg Leu	gcc Ala	cag Gln	gto Val	not Set 455	egg Arg	gca Ala	gca Als	ggt Gly	giq Val 480	arg	gt: Val	617 999	atg Leu	1392
25.	ctc Leu 465	agc Ser	agc Ser	00a 810	gca Ala	200 910 470	ata Leu	2) A 333	ggc Gly	cay Glo	gaq Glu 475	acc Thr	cag Gin	Spa Spa	800 882	agc Ser 480	1440
30 70										tuc Ser 490						cac His	1488
35	cac His	cac Kis	cac His	cac His 500	cat His	cac Bis	cac His	cac Wis	tac Tyr 505	cac Nis	ctq Leu	eră aac	aat Asn	999 Sly \$10	acq Thr	ctc Leu	1536
40	agg Arg	goc Ala	ccc Pro 515	Arg Ogg	gcc Ala	ser	gro	gag Slu S20	ato Ile	cag Gla	gac Asp	agg Arg	gat Asp 523	gcc Ala	ast Asc	gry ada	1584
										teg Sez						ggg Gly	1632
45	gcc Ala 545	gro	CCt Pro	Gly	ggc Gly	gca Ala 550	gag Glu	tot Ser	gig Val	cac His	ago Ser 555	tto Phe	tac Tyr	cst His	gcc Ala	gac Asp 560	1680
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	grg Val																1824
-44			Al.a							acc Tho							<u> </u>

	cc: 825 625	gan Tac	819 819	ero ero	tec Tyr	190 Ser 630	- - 1000 - 1000 - 1000	sty Mem	cac His	aay Lys	ota Lea 635	073 Leu	G13 448	acs Thr	bag Sin	agt Ser 640	1820
\$:-	aca Thr	ggt Gly	gun Ala	tgo Cys	088 Gin 645	890 392	to: Ser	rga. Cys	aag Lys	ato 11e 650	top Sex	ser Ser	ere Ero	tiga Cys	229 Lec 685	aas Lys	1968
10	gea Ala	gac Asp	egt Ser	99a 61y 660	god Ale	tgt Cys	801 801 801	ada Pro	040 Asp 663	agc Ser	tgc Cys	occ Pro	Tyr	tyt Cys 670	ges Als	gra Caa	2016
15	goc Ala	ggg Gly	gca Ala 875	999 Giy	gaş Glu	gtg Val	gaş Glu	21:2 Leu 660	geo Ala	gas Asp	ogt Aøg	gea Gld	aty Met 685	uct Pro	ger Asp	tea	\$064
20	gac Asp	agc Sec 690	gag Glu	gca Ala	gtt Val	tet Tyr	gag Glu 695	trc Pha	sus Thr	caq Sln	qet Asp	gcc Als 700	cag Gln	cec Bla	ago Sap	gac Asp	2112
20	ctc Leu 205	agg Arg	gac Asp	000 820	cac. His	710 3er 710	arg ogg	cag Arg	caa Gin	Arg Cgg	agc Sex 715	Ctg Leu	ggs 6ly	870 cca	get Asp	gca Ala 720	2180
23	gaq	occ Fra	agc	tot Ser	979 Val 725	cig Leu	gga Ala	tho Phe	rgg Trp	agg Arg 730	Cta Les	at: Tie	tgt Cys	gac Asp	ect Thr 735	tt: Phe	2208
30	oga Arq	aag Lys	att Tle	gtg Val 740	gac Asp	agc Ser	aag Lys	tac Tyr	ttt Phe 745	Gly Ggc	cgg Azg	gga Gly	atc Ile	atq Met 750	atc Lle	gcc Ala	2256
33	atc Tie	ctq Leu	gtc Val 755	aac Aso	aca Thr	ctc Leu	agc Ser	atg Met 760	gly	ote sil	gaa Glu	tac Tyr	cac Nis 765	gag Glu	caq Çla	aco Pro	2304
40	gaq Glu	980 61u 770	ರಭರ ಬಹಚ	ecc Thr	aac Asn	goc Ala	ota Leu 775	gaa Glu	arc	agc Ser	aac Asn	atc Ile 780	gtc Val	tto Phe	acc	gez ago	2352
	ctc Leu 785	ttt	gun Ala	atg Lea	gag Glu	atq Met 790	org Lea	otg Leu	aag Lys	ren CEG	ctt Leu 795	gtq Val	tat Tyr	ggt Gly	000 829	tct Phe 800	2400
45	ggc Gly	tac Tyr	atc Ile	aag Lys	aat Asn 805	Bro ccc	tac Tyr	aac Asn	ile	tto Phe 810	Asp get	ggc Gly	gtc Val	att	gtg Væl 815	Awi arc	2448
50	atc Ile	agc Ser	gtg Väl	tgg Trp 820	gag Glu	atc	gtg Val	ggt Gly	caq Gln 825	cag Gin	elå	G19 ggc	elk aac	ang Leu 830	3€€	gtg Val	2498
33	org Leu	Arg	#40 The 838	Phe	ege &rg	org Leu	atg Met	ogt Arg 340	Val	ctg Leu	aag Lys	ctq Leu	gtg Val 845	arg Arg	rtz Pna	stg Leu	2544
60	ccg Pro	geg Ala 850	1/9/1	caç Gin	egg Arg	cag Gln	219 Leu 855	V&L	gtg Val	oto Leu	atq Met	aaq Lys 860	Thr	aty Met	932 932	aac Aac	2592
4034	gtg Val 865	Bla	acc Thr	ttc She	tge Cys	atg Met 970	Lega	ett Leu	arq Ner	oko Leo	tt: 9he 873	12:0	tto The	eta Ile	Z S Z	390 381 880	2840

	sto on; lle Leu	gga es Gly Me	j dad do : His is 885	o tit a Pha	ggc Gly	tgc Cys	347 Lys 990	uuu Phe	ysu Ala	337 Sec	gag: Zin	093 Arg 895		2689
: 3	ggg gar Gly Sap	400 07 755 Le 90	a Bro As	o egg g Arg	aaq Lys	aat Asn 908	255 255	gac Asy	icc Ser	rer	obo Leu 910	Trp Trp	got Aia	2795
10	ato gro	act gr Thr Ya 915	o tito di 1 2500 Si	m ato o lle	dtq Leu 920	oce The	osg Cin	gag Glu	gaq Asp	133 123 925	aac Asn	aaa Lys	gto Val	2784
	ctc tac Led Tyr 930	aat gg Aes Gi	t etg gi	c toc a Set 935	acq Thr	Zés tag	Ser	tgg Trp	909 Als 940	gen Ala	rea rea	tat Tyr	titic Phe	2832
20	att god Ile Ale 945	oto at Leu Me	g ecc bi t Th: Bi 9:	ı∉ Gîy	aac Asn	tec Tyr	yel	oto Lea 955	ttc Phe	ast Asp	trg Leu	ctg Leu	gtt Val 960	2880
A. A.	qcc att Ala lle	cts gt Leu Va	283 1 610 6 2 383 9	jo ttd y Phe	cag Gin	gog Alæ	989 610 970	gga Gly	get Asp	gee Ala	aac Asn	aag Lys \$75	Ser Ser	2928
25	gaa tos Glu Ser	gag co Glu Pr 98	w Asp Pi	ic ttc me Phe	tra Ser	000 Pro 985	agc Sez	cra Leu	gat Asp	ggt Sly	gat Asp 990	01.y	gac Asp	3976
30	agy aag Arg Lys	aag tg Lys Cy 995	c ttg y s Lev A	la Leu	grg Vel 1000	tcc Ser	red	Giy	Giu	cac His 1005	320 004	Gla Gag	atg Leu	3024
35	cgg aag Arg Lys 1010	Ser Le	g ttg t u Leu 9:	ig cot o Pro 1015	Leia	atc Ile	atc Tie	873	acq Thr 1020	gcc Ala	goo Ala	aca The	000 9x0	3072
40	abg tog Met Ser 1025	otq co Leu Pr	0 880 8 0 Lys 5 10	er Thr	agc Ser	acg Thr	Giy	ctg Leu 1035	Gly ggo	gag Glo	gcq Ala	Lan	990 617 (040	3120
100	cet gog Pro Ala	tog øç Ser Az	c cgc a g Arg T 1045	oc ago hr Ser	ser	Sec	999 614 1050	282	gca Ala	gao Glu	820	999 Gly 1053	879	3168
43	god cad Ale His	gag at Sid Me 100		ra cog er fro	520	agc Ser 1065	ăla goc	ynd	ger	Ser	1030 Sto	Hirs	ago Ser	3216
50	cos tgg Pro Tep	ago go Ser Al 1075	nt gca a a Als S	er Ser	tgg Trp 1080	Thr	agc Sær	agg Arg	Axq	tcc Ser 1085	890 860	cgg Arg	aac Asn	3264
33	agt cto Ser Leu 1090	- Gly As	jt gca c :g Ala F	oc ago ro Ser 1085	ែរ‱ផ	aaq Lys	agg Arg	Arg	agc Ser 1100	Sto CCS	agt Ser	oga Gly	gag Glu	3312
60	mgg cgg Arg Arg 1103	Sar Le	ru Leo S	cg ggs ar Gly 18	gaa Glu	ggc Sly	Gin	gag Giu 1115	Sor	Caq Gla	gat Asp	i GTA	909 810 1120	3380
Va	gag agc Glu Ser	008 G: Ser G	aa gad q Lu Clu C 1125	ag cg: lu Ar;	goo Ala	े छेल्ह	001 910 1130	- સેંદ્રે હ	Gly	895 880	gac Asp	cat His 1135	Arg	3308

	cas and gog too ong gag ogg gag you aag agt too til gan sig www. Bia Arg Sly Ser Led Glo Arg Slo Ala Lya Ser Sar Phe Asp Lau Pro liag	3435
	gac aca cig cay gry sea ggg crg car ego act goo agt ggr cya ggg Asp The Lau Gln Vai Pro Gly Lau Bis Arg The Ala Sar Gly Act Gly 1188	3504
10	tot got tot gay car cag gat tgc aat ggc aag tog got toa ggg ogc Ser Ala Ser Glu His Gln Asp Cys Asn Gly Lys Ser Ala Ser Gly Arg 1170 1180	3552
13	crg ged ogg god org ogg oct gar gad oct soa olg gat ygg gar jad Leu Ala Arg Ala Leu Arg Pro Asp Asp Pro Pro Leu Asp Cly Asp Asp 1185 - 1190 - 1195 - 1200	3800
20	god gat gad gag ggd aac otg agd ass ggg gas byg gtd byd gdd tgg Ala Asp Asp Glu Gly Asn Leu Ser Lys Gly Glu Arg Val Arg Ala Trp 1208 1210 1215	3648
***	ato oga god oga oto dob god ogo ogo oto gag oga gad tod tigg tod The Arg Ala Arg Lau Pro Ala Cye Cys Leu Glu Arg Asp Ser Trp Ser 1220 1225 1230	3696
25	get tac ate etc cet cet can tes any the ego etc cty tot cac ego Ala Tyr The Phe Pro Pro Gln Ser Arn Phe Arn Leu Cys Sis Arn 1235 1240 1245	3743
30	are are acc cae asg arg tro gad cae gtg gtc cir gto are atc ttc The The The His Lys Met Phe Asp His Val Val Leu Val lie The Phe 1250 1255 1260	3792
35	ett aac tge ate ace ate gee atg gag ege eee aaa att gas eed eac Lau Aan Cys Ile Thr Ile Ala Met Glu Arg Pro Lys Ile Asg Pro His 1265 1270 1275 1280	3840
40	ago got gam ago ato tto otg mod ott too met two sto too soo god Ser Ala Glo Arg Lie Phe Leu Thr Leu Ser Ash Tyr Ile Phe Thr Ala 1285 1290 1295	3888
	The ter one get gas and aca gry sad grd grd gra ctg ggd igo tgc Val Phe Leu Ala Glu Met Thr Val Lys Val Val Ala Leu Gly Trp Cys 1300 1305 1310	3936
45	ttt ggg gag cag gcg tac ctg cgg age agt tgg aat gtg ctg gac ggg Phe Cly Glu Gln Ala Tyr Leu Arg Ser Ser Trp Asn Vai Leu Asp Gly 1315 1320 1325	3984
50	erg trg grg ctc atc tcc gtc atc gar att ctg grg tcc atg gtc tct Leu Leu Vai Leu Ile Ser Vai Ile Asp Ile Leu Vai Ser Met Val Ser 1330 1335 1340	4032
53	gae age ggc ace aag ato ong ggc ang ong agg gng nng ong ong ong Asp Ser Gly Thr Lys Ile Leu Gly Met Leu Arg Val Leu Arg Leu Leu 1348 - 1350 - 1355 - 1360	4080
60	cgg and cag cgc ccg ctc agg gtg atc ago ogg gcg cag ggg ctg aag Arg Thr Leu Arg Pro Leu Arg Vai lie Ser Arg Ala Gln Gly Leu Lys 1365 1370 1376	4128
<i>5</i> 5.08	cty gtg gtg gag acg ccp atg ter toa ctg aas ccc atc ggc aac att Leu Vai Val Glu Thr Leu Hat Ser Ser Leu Lys Pro Ile Cly Asn Ile 1380 1393 1393	3176

PCT/US98/23161 WO 99/29847 34

	gta gtv ann tộc tại gọc thơ the Ale att the gạc ale tig gặp gby Vai Vai Ile Cyx Cys Ala Phe Phe Ile Ile Phe Siy Ile Leu Gir Val 1395 - 1400 - 1400	*88.4
(3)	cag ctr its ama ggg mag ttt tio gtg tgs cag ggs gmg get ass agg Gin Lev Phe Lye Gly Lym Phe Phe Vml Cym Gin Gly Glu Amp The Arg 1410 1420	4272
70	ast atc acc set see tog get tyt god gag god syt tac dag tyy gtd Ast lie Thr Asn Lys Ser Asp Cys Aia Giw Ais Sot Tyr Acg Top Val 1425 1436 1435 1446	4320
15	ogg osc asg tar mac for yer san out god dag god otg ang for out Ang Min Lyn Tyr Ann Phe Amp Ann Leu Giy Gin Ala Leu Met Ser Leu 1445 1450 1450	4388
20	ttm grm mng god tod sag gam ggm mgg gad amd atg tam gam ggm Phe Val Leu Ala Sem Lys Asp Gly Tmp Val Asp lie Mot Tym Asm Gly 1466 1465 1470	4436
	Cty gat got gtg ggc gtg gad dag dog atd atg aad gad aad dog Leu Asp Ale Vel Gly Val Asp Gin Gin Pro Ile Met Asn Ris Asn Pro 1475 1480 1485	: 446 4
33	tgg etg ctg thy tac the etc teg tte ctg dtc ant gtg ged tte ttt Trp Met Leu Leu Tyr Phe lie Sør Phe Leu Leu Ile Val Ala Phe Phe 1490 1495	\$51Z
30	gts stg aac atg tit gig gg: gig gtg gag aac tic cac aag tgt Val Leu Asn Met Phe Val Gly Val Val Val Glu Asn Phe 8is Lys Cys 1505 1510 1520	4560
33	cgg cag cac cag gag gaa gag gcc cgg cgg	4608
40	nta oga aga otg gag aða aag aga agg aða god cag tgo aða opt tac Løu Arg Arg Leu Glu Lys Lys Arg Arg Lys Ala Glo Cys Lys Pro Tyr 1540 - 1545 - 1550	4656
	tac tee gad hee tee ego tto ego eto eto gto cac tac tto too acc Tyr Ser Asp Tyr Ser Arg Phe Arg Leu Leu Val His His Leu Cys Thr 1555 1560 1565	4704
43	ago cac tac otg gac otc tto atc aca ggt gtc atc ggg otg aac gtg Ser His Tyr Leu Asp Leu Phe Ile Thr Gly Val Ile Gly Leu Asn Val 1570 1579 1580	\$752
30	gto acc atg gos and dag cas tas dag cas cen cas att otg gat gag Val Thr Met Ala Met Glo His Tyr Gin Gin Pro Glo Ile Leo Asp Glo 1585 1590 1595	4800
ĬĬ	got ong asg ato ngo aso nao ato nto aon gno ato nto gno Ala Leu Lys lie Cys Aso Tyr lle Phe Thr Val Ile Phe Val Leu Glu 1605 1610 1613	4848
60	toa gtt tto aea ott gtg geo tto ggt tto ogg tto tto cag gad Ser Val Phe bys Leu Val Ala Phe Gly Phe Arg Arg Phe Phe Glo Asp 1620 1625 1630	4888
- pr 20	agg tgg mac cag ctg gao otg god att gtg ctg ctg too atc atg ggo Arg Trp Ash Gin Leu Asp Leu Ala Ile Val Leu Leu Ser Ile Met Giy 1635 - 1640 - 1685	4844

PCT/US98/23161 WO 99/29847

	acc acc ctc cay was att cay god and god bog ctg cou att and the lik The Leu Glu Glu Ile Glu Val Ann Ala See Leu Pro Ile Ano Pro	4392
3	1650 1655 1660 and are are are any greety ore out att you upa greety and	5040
	The Ile Ile Arg Ile Met Arg Val Leo Arg Ile Ala Arg Val Leo Lys 1665 1670 1680	
10	erg ong eag and got gry goe and ogg got ong org gar and the Leu Leu Lys Met Ala Val Gly Met Ang Ala Leu Leu Asp Thr Val Met 1685 1690 1635	3088
13	cag qoo otg occ cag gtg ggg aac ptg gga ett ctc too atg ttg ttg Gin Ala Leu Pro Gin Vai Gly Asn Leu Gly Leu Leu Phe Met Leu Leu 1700 1705 1710	5136
20	tit tin win hit gow got éta gan and gwa tin tin gaw gwo cha gwa Phe Phe Ile Phe Ale Ale Leu Gly Val Glu Leu Phe Gly Asp Leu Glu 1715 1720 1725	3184
చ ిక	tgt gåt gag aca tat tit tigt gag ggt tig ggt ogt cat god acc tit Cys Asp Glo Thr His Pro Cys Glo Gly Leo Gly Arg His Ala Thr Phe 1736 1740	5232
25	cgg asc tit ggs atg gcc tic cis see ctc tic cga gtc tcc aca ggt Arg Asn Phe Gly Met Ala Phe Leu Thr Leu Phe Arg Val Ser Thr Gly 1745 1750 1760	\$280°
30	gac aat tgg aat ggc att atg aag gac acc old ogg gac tgt gac cag Asp Asn Trp Asn Cly lle Met Lya Asp Thr Leu Arg Asp Cya Asp Gin 1763 1770 1773	5328
35	gag teo acc tgc tac aac acg gtc atc tcg cct atc tac tct gtg tcc Glu Ser Thr Cys Tyr Asn Tbr Val 1le Ser Pro Ile Tyr Phe Val Ser 1780 1785 1790	5376
40	tto gtg org acg geo cag tto gtg ora gto aac grg grg atc geo gtg Phe Val Leu Thr Ala Gin Phe Val Leu Val Asn Val Val Ile Ala Val 1795 1800 1805	5424
. Ari	CLQ atg aag cac otg gag gag agc aac aag gag gcc aag gag ga	8472
45	gag cta gag get gag ctg gag ctg gag atg aag acc ctc agc ccc cag Glo Leo Glo Aia Glo Leo Glo Leo Gio Met Lys Thr Leo Ser Pro Gin 1835 1830 1835	5520
30	occ can tog oca etg ggo ago och tto oto tgg och ggg gto gag ggo Pro Bis Ser Pro Leu Ciy Ser Pro Pha Leu Trp Pro Gly Val Giu Giy 1845 1850 1855	5568
33°	coo gad ago see gas ago coo aag set ggg get etg cac coa geg geo Fro Asp Ser Pro Asp Ser Pro Lya Pro Gly Ala Leu Hia Fro Ala Ala 1860 1860 1865	5615
es e	cac gog aga toa gon the cac tit too etg gag cac coc acg atg cag His Ala Arg Ser Ala Ser His Phe Ser Lau Glu His Pro Thr Met Glo 1875 1880 1885	5664
80	oct cac coc and gag ctd coa gos coa gap the ctd act gtd GGG was Pro His Pro Thr Glb Leu Pro Gly Pro Asp Leu Leu Thr Val Ard Lys 1890 1895 1900	5712

	tot ggg gto ago oga aog dad tot otg oco aat gad ago tal atg tgt Ser Gly Val Ser Ang The His San Leu Pro Ash Asp Sen Tyn Men Cys 1985 1980 1985	5760
3 :	cgg cat ggg ago ast gcc gág ggg csc ctg gga cac agg ggs tgg ggg Arg His Gly Sar Thr Ala Glu Gly Pro Leu Gly Hia Arg Gly Trp Gly 1925 1930 1935	3808
10	oto oco asa got cag toa ggo too gto tog coc gtt cac too cag coa Leu Bro Lys Ala Gin Ser Gly Ser Val Leu Ser Val Bis Ser Gin Pro 1940 1945 1950	5856
15	gea gar ace age tac are etg mag out one ass gat ges int can ong Ala Asp Thr Ser Tyr Ile Leu Gin Leu Pro Lys Asp Als Fro His Leu 1955 1960 1965	5904
20	ere can ree eac ago goo coa ace ton ngo aco ato coe asá cty soc Leu Gln Pro His Ser Ala Pro Thr Trp Gly Thr lie Pro Lys Leu Pro 1970 1975 1980	5952
i waki	oca cea gga ogo too oot try get cag agg coa etc agg ogo cag goa Pro Pro Gly Arg Ser Pro Leu Ala Gla Arg Pro Leu Arg Arg Gla Ala 1985 1990 1995 2000	6000
25	qca ara agg act gac toc ttg gad gtt cag ggt ctg ggc agg cgg gaa Ala lle Arg Thr Asp Ser Leu Asp Val Gln Gly Leu Gly Ser Arg Glu 2005 2010 2015	6048
30	gac ctg ctg gca gag gtg agt ggg sec tee eeg eee etg ges egg ges Asp Leu Leu Ala Glu Val Ser Gly Pro Ser Pro Pro Leu Ala Arg Ala 2020 2025 2038	6096
35	tac tel the tog oge cap tea age ace cap coa cap cap ese tee ege Tyr Ser Phe Trp Gly Gln Ser Ser Thr Gln Ala Gln Gln His Ser Arg 2035 2045	\$144
40	age car age mag ato tee mag car atg acc eeg com goo cet too een Ser His Ser Lys lie Ser Lys His Mat Thr Pro Pro Alm Pro Cys Pro 2050 2055 2060	6192
	ggo cos gas coc ast tgg ggo sag ggo cot cos gag soc ags ago agt Gly Pro Glu Pro Asn Trp Gly Lys Gly Pro Pro Glu The Arg Ser Ser 2065 2070 2075	6240
45	tta gag ttg gac acg gag ctg agc tgg att tca gga gac cto ctg ccc Leu Glu Leu Asp Thr Glu Leu Ser Trp Ile Ser Gly Asp Lau Leu Pro 2085 2090 2090	6288
30	ook ggc ggc mag gag gag ook ook too ook ogg ged otg keg keg tyr Pro Gly Gly Gln Glu Glu Pro Pro Ser Pro Arg Asp Leu Lys Lys Cys 2100 2105 2110	6336
33	tac ago gtg gag god dag ago tgo dag ogd ogg oot acg too tgg otg Tyr Ser Val Glu Ala Gln Ser Cys Gln Arg Arg Pro The Ser Top Leu 2115 2120 2125	6384
60	gat gag cag agg aga cac tot ato god gic ago tgo ctg gad ago ggo Asp Glo Gln Arg Arg His Sex Ile Ala Val Ser Cya Leb Asp Ser Gly 2130 2135 2140	8432
**63*40.	too cas one pap ong ggo sos gat one tot aso ott ggg ggo cag not Ser Gin Pro His Leu Gly Thr Asp Pro Ser Asn Leu Gly Gly Gin Pro 2145 2150 2155 2160	6380

PCT/US98/23161 WO 99/29847

	ott ggg gg	y ero	993 890 Gly Ser 185	- 699 809	ozo Pto	Lys)	888 Lys 170	asa Lys	ota Les	aço Sec	EXO.	000 910 173	491 5e2	6523
	ato acc at Tie Thr Il	a gat e Asp 2180	woo coo Yro Pro	Glu Glu	Sec :	caa : Gin : 185	ggt: Gly	820 001	cgg Arg	2,72	000 900 190	ecc Pro	agr Ser	6576
10	cot ggt st Pro Gly Il 219	le Cys	dto ogg Leb Arq	Arg	agg : Arg : 200	get Ala	ecg Pro	too Ser	Sec	gat Asp 205	occ Ser	aaq Lya	gat Asp	8624
ij	cee ttg gr Pro Lea Al 2216	c tot a Ser	gge occ	000 Pro 2215	gac Asp	agt Ser :	aty Men	614	900 Ala 220	tog Ser	Pro coc	tor Ser	oca Pro	8672
20	aaq aas qs Lys Lys As 2225	st gtg sp Val	ong agb Leu Ser 2230	Leu	tot Set	ggt Gly	Leu	toc Sex 235	pot Sec	gac Asp	oca Pro	Ala	gac Asn 1740	6720
en grif.	ctq yac co Leu Asp Fr													6729
25	<210> 5 <211> 676; <212> DNA <213> Rati													
30	<220>													
	<222> (1)	(6762	<i>f</i> .											
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35	<222> (1) <400> 5 atg gas qa Met Asp G	aq qaq Lu Glu to acq	gag gat Slu Asp S	r Gly.	Ala	Gly Stg	Ala 10 tcc	Glu ggg	Qlu gca	Ser	aac era	Gln 15 cgg	cag Src	
	<222> (1) <400> 3 atg gac gatgeted Asp G 1 cgt egc to Arg Ser Pl ggg ccg gatgeted Gly Pro G	ay gag lu Glu to acg he Thr 20	gag gat Glu Asp 5 Cag cto Gin Leo	r Gly : aac : Asn : aag	Ala gac Asp	Gly Ctg Led 25 Cog	Ala 10 too Sar ggo	Glu ggg Gly agc	gaa Ala gag	gac ggg	Gly ggc Gly 30	Gin 15 cgg Arg	esq Gin Gog	
45	<222> (1) <400> 3 atg gac gatgeted Asp G 1 cgt egc to Arg Ser Pl ggg ccg gatgeted Gly Pro G	aq gag lo Glu to acg he Thr 20 gg tog iy Sær 33	gag gat Glu Asp 5 Cag ct: Gin Le: acg ga: The Gl:	. Gly : ∾ : Asn : &ag : Lys	gac Asp gac Asp 40	Cly ctg Lea 25 cog Pro	Ala 10 tcc Ser ggc Gly ccg	ded Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser	Glu gcc Ale gcg Ala	Ser Sgg Gly gac Asp 45	Gly ggc Gly 30 toc Ser	Gin 15 ogg Arg gac Glu tac	eso caq Gin goq Ala ttq	36
40	<222> (1) <400> 5 atg gac gatg Asp G 1 cgt agc t Arg Ser F ggg ccg gatg ccg Gly Fro G gag ggg c	ay gag lu Glu to acg he Thr 20 gg tog ly Ser 23 co cog eu Pro	gad gate Glu Asp Cad cte Glu Lee acd gas The Glu tac cce Tyr Pre	: Gly : aac : Asn : aaq : Lys : Ala : SS : Cgg : Arg	gac Asp gac Asp 40 cca Leu	Cly ctq Lea 25 ccq Pro qcc Als	Ala 10 tcc Sex egc Gly ccg Pro	Glu ggg Gly agc Ser gtg Væl	gcc Ala gcg Ala gtt Val 60	Ser ggg Gly gac Asp ttc Phe	Gly ggc Gly 30 too Ser tto Phe	Gin 15 cgg Arg gao Giu tac Tyr	cag Cin Gcg Ala ttg Leu	36
45	<222> (1) <400> 5 atg gac gac gac agc agc cag gag ccc gag gag	aq qaq in Glu re acq ha Thr 20 qq toq iy Sar iy Coq au Pro ac age	gag gat Glu Aag Cag ott Glu Let acg gas The Glu tac occ Tyr Pro cgc cc Arg Fro	Gly acc Acc Acc Acc Acc Acc Acc Acc Acc Ac	Ala gac Asp gac Asp 40 cca Leu agc Ser	cta taa taa coa acc Als coa Als	Ala 10 tcc Sex ggc Gly ccg Pro tgt Cys	Glu ggg Gly agc Ser gtgl crc Leu 75	Glu gca Ale gca Ala gca Ala gtt Val cgc Arg	Ser ggg Gly gac Asp tto tto and and	Gly ggc Gly 30 toc Ser the gtc Val	Gin 15 cgg Arg gag Glu tac Tyr tgr Cys	cag Gin geq Ala ttg Leu asc Asn 80	144
40 45 50	<222> (1) <400> 5 atg gac gac gac agc agc cag gag ccg agc cag gag ccg cag ca	aq qaq ix Glu ix Glu ix acq he Tor gg tog gy Ser iy Ser iq cog eu Pro ac ago ap Ser to gaq he Glu gr acq	gag gate Glu Aag gas Glu Lee Glu Eag gas The Glu Eag Glu Arg Fronge Glu Arg Fronge Glu Arg Glu Arg Glu Arg Glu Arg Glu Arg Va	Gly aac aac aac aac aac aac cag cag cag ca	gac Asp gac Asp 40 cca Leu agc Ser stg Mac	Cly Cra Lea Pro QCC Als tag Trp Cra Cra Gea	Ala 10 tcc Sex ggc Gly ccg tgt Cys gtc Yal gac	Glu ggg Gly aga ggg Gly aga gra gra gra ara 75 att Ile	Glu gcc Ale gcg Ala gtt Vel cgc Arg ctc Leu gcc	Ser saga Gly gac Asp tto Phe acg Thr cto Leu tgt	Gly ggc Gly cor cor che gys asn gs	Gin 15 cgg Arg gag Giu tacr Tyr tgr cys cgs tscr	cag cag Gin gog Ala ttg Leu aac Asn 80 gog Vai	144

38

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			113					150					128				1.1.2.2.
****	got Ala	gtq Val 130	gsa Glu	etg. Met	gtg Val	Veri.	889 Lys 135	atq Met	gig Val	god Ala	ttg Leu	99¢ 61y 140	att Lla	iti Pha	er 333	aaq Lys	432
3.25	asa Lys 145	tgt Cys	tac Tyr	erg Lep	ggs Gly	gat Asp 150	act Tox	tgg	aac Asn	Arg egg	ctt Leu 155	yan Asp	ine The	tto Phe	att lie	gto Val 160	\$80°.
10	att lle	gca Ala	Gly	arg Met	ctg Leu 185	gag Glu	tat Tyr	tog Ser	ctg Leu	gać Asp 170	ctg Leu	cag Gin	asc Asn	gta Val	agc Ser 175	ctc Phe	528
15	toc Ser	gca Ala	V#1	agg Arg 180	aca Thi	Val gro	egt Arg	gtg Val	cty Leu 188	oga Arg	ecq Pro	ata Seu	agg Arg	gcc Ala 190	att Ile	asc Asn	\$76
20	ogg Arg	gtg Val	138 810 622	ago Ser	atg Met	ogc Arg	att Ile	ctc Les 200	gto Val	aca Thr	tta Leu	atq Leo	019 Leu 205	gac Asp	acc Thr	ttg Leu	824
25	cot Pro	atg Met 210	Tie a	ggc Gly	asc Asn	gtc Val	ctq Leu 215	ctq Leo	coc Lau	tgt Cys	tta Phe	tte Phe 220	gto Val	ttt Phe	ttc Phe	atc Ile	672
്യത്	ttt Phe 225	gga	atc Ils	gtg Val	Gly ggc	gtc Val 230	cag Gin	ctq Leu	tgg Trp	gça Als	gga Gly 335	atg Læu	att Lea	ogo Arg	aac Asn	cgg Arg 240	720
30	tga Cys	tto	ctc Læa	000 Pro	gag Glu 248	sac Asn	tta Phe	ago Ser	atc Leu	000 250 250	otg Lea	ago ago	gtg Val	gac Asp	ctq Leu 255	gaç Glu	768
35	act Fro	tat Tyr	tac Tyr	caq Gln 260	aca Thr	gag Glu	eat Asn	gag Glu	gac Asp 265	gag Glu	agc Ser	200 200	tto Poe	atc Ile 270	tgc Cys	tet Ser	315
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45	ogt Arg	330 817 333	Glu	GLy	ggt Gly	ggt Gly	990 617 295	cca	ecc	tga Cya	agt Ser	ctq Leu 300	gac Asp	tat Tyr	gag Glu	acc Thr	913
C.S.	tat Typ 305	aac Asn	agt Sez	ser	agc Ser	aec Asn 310	acc The	aco Thr	tgt Cys	gto Val	aac Asn 315	tgg Trp	aac Asn	caç Gln	tac Tyr	tat Tyr 320	960
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60	CEQ C#u	gaq Glu	990 Gly 358	Tep	gtc Væl	gac Asp	ato	atç Met 360	Tyr	tto Phe	gta Val	atq Met	gac Asp 363	Ale	csc	ton Ser	1104
	tto Phe	tac Tyr	aac Asn	tto edg	ato Ile	tac Tyr	ttc Phe	att Ile	att bed	orc Leu	ato	atc lle	gtg Val	ggs	tc: Ser	tto Phe	1152

39 370 375 380 tte atg are ast try rec try ere gre gre are goo ace the tre goo gay. The Met Ile Asn Lei Cys Lea Val Val Ile Ala Thy Gin Pha Ser Giu 395 2348 acc asa cag cog gag agt cag ctg atg cag gag cag cag cyt yta cya tto The Lys Gin Arg Giu Ser Gin Lea Met Arg Glu Glo Arg Val Arg Phe 43.0 10 ong the san gen ago acc ong yes ago the ton gag oca ago ago ngo 1298 Lou Ser Asn Ala Ser Thr Leu Ala Ser Phe Ser Glo Pro Gly Ser Cys 320 15 ter gay gay one one say had one gry tac ato one ogs ass gos god-Tyr Glu Glu Leu Leu Lys Tyr Leu Val Tyr Ile Leu Arg Lys Ala Ale rgs agg ctg got tag gto bot agg got ata ggo gtg cgg got ggg ctg 1392 20 Arg Arg Leu Ala Gin Val Ser Arg Ala Ile Gly Val Arg Ala Gly Leu 450 1440 න්විය ඔහුය ඔහුට සරම අවල අදල පසුව ඔහුව අඩුවු රාමේ සුමුමු දැදවා එමෙන් සිතව ඔහුව ඔහුව Lau Ser Ser Pro Val Ala Arg Ser Gly Gin Glu Pro Gin Pro Ser Gly 25 1488 ago tigo act ugo tos cau cyt cyt oty tot ytt oar bar bet big gib cac Ser Cys Thr Arg Ser His Arg Arg Led Ser Val His His Led Val His 30 can cat can can can can can can can tac can cty got ast ggg and oth 1936 Ris His His His His His His His Tyr His Leu Gly Asn Gly Thr Leu 33 1584 සමුස අදීදී රජව පසුව ල්වප වෙල්ප පසන සමුතු කරන යනව සුපේ පමුමු එකද එවළ සමද සිමුමු Arg Val Pro Arg Ala Ser Pro Glu Ile Gln Asp Arg Asp Ala Asn Gly 520 1832 ggg dad dad dae and ees fof ooo soo soo ats ats of per tot 40 Ser Arg Arg Lea Med Lea Pro Pro Pro Ser Thr Pro Thr Pro Ser Gly 1686 අවුරු වෙවා පෙනේ නියල් අයල් අයල් අයල් අන්ද විවාද අවුන් එමේද කිසුන් විශ්ය වන අයද අයද අයද Gly Pro Pro Arg Gly Ala Glu Ser Val His Ser Phe Tyr His Ala Asp 45 1728 tgo can the gay oca giv out ten cay you our cot out ago tgo coa Cys Ris Leu Glu Pro Val Arq Cys Gln Ala Pro Pro Pro Arg Cys Pro 50 1776 tog gag gca tot ggt agg act gtg ggt agt ggg aag gtg tao coo act Ser Glu Ala Ser Gly Arg Thr Val Gly Ser Gly Lys Val Tyr Pro Thr 55 වුවීම මෙව අවසු කළ පුළු සුදුරු පුදුරු අදුරු අදුරු දෙය වුවල පුදුරු අදුරු පුදුරු පුදුරු දැනීම වුවල වුවල 1824 Val His Thr Ser Pro Pro Pro Gio Ile Leu Lys Asp Lys Ala Leu Val 595 600

ata paga goo qoo aga qoo qoo qoo qoo oo aga qaa aga tid aaa aga tid

Glu Val Ala Pro Ser Pro Gly Pro Pro Thr Leu Thr Ser Phe Aso Ile

TOO SET THE COC THE AGE TOO BIT CAS ARE SEE STE CTT THE BAG ACA CAS AGE Pro Pro Gly Pro Phe Ser Ser Met Sis Lys Leu Leu Glu Thr Gin Set

- 60

610

	625					630					835					640	
	acg Thr	giy gaa	qct Ala	090 Cys	325 815 843	agc Ser	toc Ser	cya	aaa Lys	atc Ile 650	too Ser	egt Ser	860 860	tys tys	toc \$er 655	aag Lys	1968
10-		gar Asp	agt Ser	999 617 660	gic Als	tgo Cys	gly	gra	gac Asp 665	āgt Ser	tqt Cys	Tro Tro	tas Tyr	595 Cys 870	gcc Ala	ogg: Arg:	2018
***	ತ್ರದಿತ	Gly Gly	gca Ala 675	gga Gly	gag Slu	goa Pro	Giq Giq	tcc 3er 680	gct Als	gac Asp	cas His	grö Val	atg Met 885	cot Pro	gac Asp	108 301	2064
13	gac Asp	agc Ser 690	gay Slu	g¢r Ala	gra Val	tat Tyž	989 Glu 695	ttc 85e	aca The	cag Gln	gac Asp	got Ale 700	cag Gin	wac His	agt Ser	gac Asp	2112
20	ctc Leu 705	ogg Arg	gat Asp	000 910	car His	ago Ser 710	ynâ căă	egg Arg	cga Arg	sag Gln	cgg Arg 715	ayc Ser	otg Leu	gar	ces Pro	gat Asp 720	2160
2,5	gca Ala	gag Glu	ect	agt Ser	tet Ser 723	gtg Väl	otg Leu	gct Ala	tto Pha	tgg Trp 730	agg Arg	otg Læu	arc Ile	tgt Cys	gac Asp 735	aca Thr	2208
30	Phe	cgg Arg	ääg Lys	atc Tie 740	yal Yal	gat Asp	aqc Sez	aaa Lys	tac Tyr 745	ttt	ggc Gly	cgg Arg	gga Gly	atc Tis 750	etg Met	atc Ile	2256
(30)	gee	atc	ctg Lea 755	ged Val	aat Asn	aca Thr	ren	aqc Ser 760	atg Met	elà ààc	atc Ile	gaq Glu	tac Tyr 765	cac Mis	gag Glu	Cag Sin	2304
33	850	gag Glu 770	geg Glu	otc Leu	acc Thr	aac Asn	gcc Ala 775	ctų Leu	gee Glu	etc Tie	Ser sgc	&&C Asn 780	atc Ile	gtc Val	tta Phe	acc Thr	2382
40	ago Ser 785	ctc Leu	tto Phe	gcc Ala	req	gag Glu 790	atg Mæt	ctq Leo	atg Leu	aaa Lys	atg Lea 793	crt Leu	gtc Val	tac Tyr	ggt Gly	ccc Pro 800	2400
43	ttt Phe	gly	tac	att	aaq Lys 805	aat Asn	ccc Pro	tec Tyr	aac Asn	atc 11e 810	Phe	gat Asp	ggt Gly	gtc Val	att Ile 915	gty Val	2448
50	gtc Väl	atc lle	agt Ser	gtg Val 820	rrp	gaq Glu	stt Ell	gtg Val	ggc Gly 825	cag Gln	cag Gln	gga Gly	ggt Gly	990 61y 830	ctq Leu	rog Ser	2496
	gtg Val	ctq Leu	cgg Arg 835	Thr	rtc	cgc Arg	otq Leu	atg Mer 840	Arq	gtç Vəl	otg Leu	aag	ctg Leu 845	gtg Val	arg	tts Phe	2544
33		ccg Pro 850	Ala	ctg Leu	caq Gin	ege Arg	089 Gln 855	etc Lea	gtg Val	gtq Val	ctc Leu	atg Met 860	Lys	acc Thr	atq Met	gac Asp	2592
60	880 Asn 863	Val	gcc Ala	acc Thr	ttc Phe	tqc 0ys 870	Net	ctc Leu	ctc Leu	atg Met	ctg Læu 975	\$25.0	ato Ile	rrc Phe	ate lie	ttc Phe 880	2640
	agc Ser	arc	Leu Cog	ggc	atg Met	cat His	ctc Leu	ttt Pha	ggt	tgc Cys	aag Lys	uta Phe	gca Ala	tar Ser	gaa Glo	ogg Arg	7688

					883					890					895		
	gat Asp	999 Sly	gac Asp	acg Thr 900	ntg Leu	cca Pro	gac Asp	dgg Arg	aag Lys 905	sat Asn	tto Phe	gac Asp	262	atg Leo 910	ota Leu	Tro Tro	- 2736 ·
	god	ato Lle	gtc Val 915	sor The	gro Val	ttt Phe	cag Gln	at: 11a 920	ctq Leu	act Thr	cag Sim	gaa Gla	925 925	120 283	aat Asn	aas Lys	2788
10	gtc Val	000 180	taç Tyr	aac Asn	ggc	ang Met	god Ala 935	poc Ser	aca The	Ser	tot Ser	199 Top 940	gct Ala	gct Ala	ott Leu	tec Tyr	2832
15	tto 950 945	aro Ile	god Ala	att Lev	atg Mer	act Thr 950	ttt	ggc	aac Aso	tat Tyr	gtg Val 955	oto Leu	ttt Pha	asc Asn	ong Leu	ots Lec 960	2880
20	gtg Val	gcc Ala	alt Ile	ctt Leu	gtg Val 965	gaa Slu	Gly gga	ttc Pha	caq Gln	gca Ala 970	gaş Glu	617 848	qat Asp	gcc Alæ	acc Thr 978	asç Lys	2928
25	tot Ser	gag Glu	tca Ser	gag Glu 980	cot Pro	get Asp	tto Phe	tet	tog Ser 985	910 000	agt Ser	gtg Val	gat Asp	330 877 88.c	gat Asp	ggg Sly	2978
	989 Asp	aga Arg	aag Lys 995	aag Lys	ogo Arg	ttg Leu	Ala	ctg Leu 1000	gzg Val	get Ala	ttg	GIA	gaa Glu LOOS	cac His	aca aca	gea Glu	3024
30	Leu	cga Arg 1010	Lys	agc	ont Leu	Lew	000 Pro 1015	520	etc Leu	ato Ile	1.10	tat His 1020	ecg Thr	gez	aca Ala	acs Thr	3072
35	cca Pro 102:	Mer	oca Ser	cac Kis	520	aaq Lys 1030	agc Ser	too Sex	agc Ser	The	995 Gly 1035	Val	999 Gly	gaa Glu	Ala	ctg Leu 1040	3126
40	ggc Gly	tet Ser	ggc	Ser	cga Atg 1045	ogt Arg	acc	agt Ser	Ser	agt Ser 1050	era aaa	too	gct Ala	Sys	cct 220 1055	Gly	3168
45	gst Ala	goo	His	cat Mis 1060	Gla	atg Met	aaa Lys	Cys	ccq Pro 1065	oca Pro	ags Ser	goc Ala	Arg	eçc Ser 1070	toc Ser	ecg	3216
a jagan	cac His	Sar	000 Pro 1075	Try	ayt Ser	gcq Ala	Ala	agc Ser 1080	agc Ser	tgg Trp	acc Thr	Sex	aqq Arq 1085	ogo Arg	tcc Ser	ago Ser	3264
30	Aro	aac Asn 1090	Ser	otg Leu	ggc	Arg	gcc Ala 1095	exo	ser	cta Leu	Lys	1100 Arg 1100	agg Arg	agc Ser	810 ccd	ago Ser	3312
ĴĴ	333 Gly 110	Glu	ogg Arg	yr3 agg	262	otg Leo 1110	Leu	tet Ser	er ada	Glu	ggc Gly 1115	Gin	gag Glu	agt Sec	Gln	gat Asp 1120	3360
60	gag Glu	gaq Glu	gas Glu	aqt Ser	tca Ser 1125	2377	gaq Glu	gac Asp	42.0	gcc Als 1130	Ser	oca Pro	çca Ala	Sly	agt Ser 1135	960 A≽p	3408
	cat	ege Arg	cac Nis	agg Arg	ı Gly	toc	Leu Leu	gaa Glu	agt Arg	gag Glu	gcc Ala	eag Lys	agt Set	25.0 3#2	ttt Phe	Asp gac	- 3436

	1140		1145	31.1% 	
**************************************	org out gad ant Leu Pro Asp Thr 1155	cty cag gty c Leu Gin Vai P	ro Gly Leu Als	ogo aca goo ago ago Arg The Ala Ser Gly 1165	3504
10	ogg ago tot god Arg Ser Ser Ala 1170	to: gay cac o Ser Glu His G 1173	in Asp Cys Asn	ggo eag bog got tos Gly Lys Ser Ala Ser 180	3553
£.W.	ggg cgt tig gcz Gly Arg Lev Ala 1185	tgo acc ctg a Arg Thr Leu A 1190	gg act dat gec rg Thr Asp Asp 1193	gov caa oog gat ggg Pro Gin Leu Aso Gly 1700	3600
7.5	Asp Asp Asp Asn	gat gag gga a Asp Glu Gly A 1205	at ctg agc eee an Leu Ser Lys 1210	ggg gaa cgc ata caa Gly Glu Arg Ile Gln 1215	3648
20				oga gag oga gat toc Arg Glu Arg Asp Ser 1230	3696
35	tgg tog get tat Trp Ser Ala Tyr 1235	ato ttt oot c The Phe Pro P 12	ro Gin Ser Arg	thi ogt oto otg tgt The Arg Leu Leu Cys 1245	3744
30	cac ogg acc atc Bis Azg Ile Ilm 1250	act cac asg a Thr His Lys M 1255	et Phe Asp Ris	gtg gtc ctc gtc atc Val Val Leu Val Ile 260	3792
* ****	ato tto etc aac Ila Pha Lau Aan 1265	tgt atc acc a Cys lie Thx I 1270	to got ato gag le Ala Met Glu 1273	ogo coe aaa att gac Arg Pro Lys Ile Asp 1280	3840
35	Pro His Ser Ala	gag cgc atc t Glu Arg Ile P 1285	to otg acc oto he Leu Thr Leu 1290	ton aso two ato tto Ser Aso Tyr Ile Phe 1295	3888
40	acg goa gic tit Thr Ala Val Phe 1300	Leo Ala Glo M	to aca gtg asg let The Val Lys 1305	gtg gtg gca ctg ggc Vai Vai Ala Leu Gly 1310	3936
45	tgg tgc ttt ggg Trp Cys Phe Gly 1315	gag cag goc t Glu Gln Ala T 13	yr Lea Arg Ser	ago tgg aat gtg otg Ser Trp Asn Val Leu 1325	3994
50	gac ago tty ctg Asp Gly Leu Leu 1330	gtg ord ato t Val Leu Ile S 1335	er Val Ile Asp	ato ong gro too ang Tie Leu Val Ser Met 340	4032
. 4 /20.]	gto too gae ago Val Ser Asp Ser 1345	qqc acc aag a Gly Thr Lys I 1350	to opt ggd atg le Leu Gly Met 1355	ctg agg grg ctg cgg Leu Arg Val Leu Arg 1360	4080
: 53	ctg ctg cgg acc Leu Leu Arg Thr	ctg cgt cca c Leu Arg Pro L 1365	to agg gto atc eu Arg Val Ile 1370	agc cgg gcc cag gga Ser Arg Ala Gin Gly 1375	:41.28
60		Val Glu Thr L		etc ass eec att ggc Leu Lys Pro lie Giy 1390	3176
				art trr gge art crc Tie Phe Gly Tie Leu	4224

	2385	1400	1493	
3	ggg gig bag sts tis a Gly Vai Gin Leu Phe 1 1410	aaa qog aaq tic .ya Giy Lya Bha 1415	tko gig igi dag ggi g Phe Val Cys Gin Gly G 1428	ag gac 4277 Iu Asp
10	Acc agg asc acc acc s The Arg Agn lie The F 1425			
	tgg gto cgg cac mag t Trp Val Arg His Lys 1 1445	fyr Asn Pha Asp	Asn Lew Gly Glo Ala I	
15	tee etg tti gtg etg : Ser Lou Phe Vai Leu } 1460	see tee aag gat : Na Ser Lys Asp : 1465	ggt tgg gtt gac att a Gly Tro Vel Asp Ile M 1470	rg tat 4915 Met Tyr
20	gat ggg ctg gat gor : Asp Gly Leu Asp Als \ 1475	jig ggt gtg gat /al Gly Val Asp 1480	cag cag cor atc atg a Gin Gin Pro Ile Met A 1485	was cas 4464 tan His
25	aad doc tyg atg tty : Asn Bro Trp Met Leu l 1490	rta tac tic atc Leu Tyr Phe Ile 1495	too tto oto oto ato g Ser Phe Leu Leu Tie V 1800	rtg pos 4512 /al Als
30	Phe Phe Val Leu Asn !	stg tit gtg ggc 4et Phe Val Gly 310	gtg gtg gag aac t Val Val Glu Asn P 1515	he His 1520
ing da	aag tgc aga cag cac : Lys Cys Arg Gln His : 1525	Gla Gla Gla Gla	gag gog agg ogg ogt g Giu Ala Arg Arg Arg 6 530 is	Nia Sla 135
35	Lys Arg Leu Arg Arg 1540	Leu Glu Lys Lys 1545	aga agg agr aag gag a Arg Arg Ser Lys Giu I 1550	iys Cln
40	Met Ala Glu Ala Glo (1555	Jys Lys Fro Tyr 1560	tac tot gas ted tog : Tyr Ser Asp Tyr Ser / 1965	irg Phe
45	Arg Leu Leu Val Bis 1570	His Leu Cys Thr 1575		Leu Sha
50	lie Thr Gly Val IIe : 1585 1	Giy Leu Asn Val 590	gtc act atg god atg (Val Thr Met Ala Net (1895	314 His 1600
، نجن بخي	Tyr Gln Gin Pro Gin (605	Tie Leo Asp Glo 1	e di Maria. Na santa di	Asm Tyr 615
33			tca gtt ttc sea ctt : Ser Val Phe Lys Leu : 1630	Val Als
60			agg tgg aac cag ctg (Arg Trp Asn Gin Leu) 1645	Asp Leo
	got att gtg off ofg Als lie Val Leu Leu	too and and ggo Ser lie Men Gly	ato aca org gag gag i The Thr Leu Glu Glu	att gag 4992 Lie Glu

	1850	<u> </u>	1860	
3	gtc dat ctg Val Asn Leu 1665	tog ong occ ato aso Ser Leu Pro lie Aso 1670	coc acc atc atc ogt Pro Thr lie lie Arg 1675	atc atg agg 5040 lle Met Arg 1880
10	gig cic tgc Val Leu Arg	att göz öga git ötg Tin Ala Arg Val Lev 1685	sag ctg ttg sag atg Lys Leu Leu Lys Mes 1690	gut grg ggc 5088 Ala Val Gly 1695
d M.	Met Arg Ala	rty org cac acy gig Lau Led His Thr Vai 700	, atg cag gcc ctg cos Mat Gin Ala Lau Pro 1708	cay god ggg 5136 Sin Yai Giy 1710
7.5	asc ctg gga Asn Leu Gly 1715	ctt ctc ttc ang tra Leu Leu Phe Met Leu 1728	ttg ttt tto atc ttt Lau Pha Pha Ila Pha 1725	gea got etg - 5184 Ala Ala Leu
20	gg: gtg gag Gly Val Glu 1730	obo ttt gga gad otg Leu Phe Gly Asp Lev 1735	gag tgt gat gag aca Glu Cya Asp Glo Thr 1740	cac cot tgt 5232 Bis Pro Cys
25	gag ggc ttg Glu Gly Leu 1745	gg: cgg cat goc acc Sly Arg Bis Ala Thr 1750	tet agg eac tit ggt Phe Arg Ass Phe Gly 1753	atg god tit 5280 Mmr Ala Phe 1760
30	ctg acc ctc Leu Thr Leu	tto aga gto too act Phe Aza Vei Ser Thr 1765	ggt gac asc tgg ast Gly Asp Asn Trp Asn 1770	ggt att atg 5328 Gly Ile Met 1775
고려 ** 	Lys Asp Thr		cag gag toc acc tgo Gin Giu Ser Thr Cys 1785	
35	gtc atc tcc Val Ile Ser 1795	get are tac ttt gtg Pro Ile Tyr Phe Val 1800	tee tre gtg etg acg Ser Phe Val Leu Thr 1803	gcc cag ttt 5424 Ala Gin Phe
40	grg ctg gtc Val Leu Val 1810	eac gin gir eta go: Asn Val Val Ile Ala 1815	gtq ctg atg aag cac 1 Val Lew Met Lya Ris 1820	org gaa gaa 5472 Leu Glu Glu
45	agc aac aaa Ser Asn Lys 1825	gaş get ası gaş gaş Glu Ala Lys Glu Glu 1830	ı gee gag ete gag ge: : Ala Giu Leu Giu Ala 1835	gag ctg gag 5520 Sid Leb Glu 1840
50	Cty yaş atş Leu Glu Met	aag acg etc ags cos Lys The Leu Sel Pro 1845	p cag one cac too cog > Gin Pro His Ser Pro 1830	ctg ggc ags 5568 Leu Gly Ser 1855
and a	Pro The Leu	tgg coc ggg gtg gas Trp Pro Gly Vai Glo 860	g ggt gtc asc agt act Gly Val Asn Ser Tho 1865	gac ago oot 5616 Asp Ser Pro 1870
<i>35</i>			: goc cac att gga goa :•Ala His Ile Gly Ala } 1885	Ala See Cly
60	tto soc ott Phe Ser Leu 1890	gay cac coc acy at; Glu His Pro Thr Met 1895	y gta coo cao coo gag : Val Pro His Pro Glo 1900	gag gtg oca 5712 Glu Val Pro
	gte cee éta Val Pro Leo	gga cos gas sig os: Gly Pro Asp Leu Let	; act gtg agg asg tot The Val Arg Lys Ser	ggt gud agd 5760 Gly Val Ser

	ing sage of	75.1 W		
	1905	7,510 -	1915	19 20
, S	cgg acg cac Arg Tar His	tot otg tot aat Ser Leu Pro Asn 1925	gac ago two atg tgo og Asy Ser Tyr Met Cys Ar 1930	r ast ggg ago - 5808 g Aso Gly Ser 1935
\$ 3 5 5 5	Thr Ala Gio	aga too ota gga Arg Ser Leu Gly 940	cac agg ggc tgg ggg ct His Arg Gly Tro Gly Le 1945	o pod asa ged - 585% : J Roo Lys Ala 1930
10		Ser Ile Leu Ser	gtt cac too taa toa go Val His Set Sin Pro Al 1960 - 196	x Asy Thr Ser
15			gat gtg cac tat ttg tt Asp Val His Tyr Leu Le 1980	
20			ato cot asa ote coo co lle Pro Lys Leu Pro Pro 1995	
25	toc cet etg Ser Pro Leu	get can agg cot Ala Gln Arg Pro 2005	etc agg cgc cag gca gc Leu Arg Arg Gin Ala Al 2010	a ata agg act 6048 a lle Arg Thr 2015
30	Asp Ser Leu	gat gtg cag ggc Asp Yai Gln Gly 1020	ctg ggt agc cgg gaa ga Leu Gly Ser Arg Glu As 2025	o ong thg toa - 6096 p Leu Leu Ser - 2030
	gag gtg agt Glu Val Sør 2035	Gly Fro Ser Cys	ect ctg acc cgg tec to Pro Leu Thr Arg Sar Sa 2040 204	r Sen Phe Tro
35	age ggg teg Gly Gly Ser 2050	agc atc cag gtg Ser The Ghn Val 2055	çag cag cgt top ggc at Gln Gln Arg Ser Gly Il 2080	o cag ago aas 6192 e Gin Ser Lys
40	gto too aag Val Ser Lys 2065	cac ato ogo otg His lie Arg Leo 2070	cca gcc cct tgc cca gg Pro Ala Pro Cys Pro Gl 2975	c arg gad occ - 6240 y Leu Giu Pro 2000
45	ago tag geo Ser Trp Ala	asg gac oct coa Lys Asp Pro Pro 2085	gag ass aga ags ags tt Glo Thr Arg Ser Ser Le 2090	a gag otg gac - 6288 u Glu Leu Asp 2095
50	Thr Glo Leu		gga gac ctc ctt dec ag Gly Asp Leu Leu Pro Se 2105	
		Phe Pro Arg Asp	ctg aag wag tgc tas ag Leu Lys Lys Cys Tyr Se 2120 212	r Val Glu Thr
33			ggg tto tgg cta gat ga Gly Phe Trp Leu Asp Gl 2140	
60			cig gan agn ggn tot ta Let Asp Ser Gly Ser Gl 2155	
	tgt oos sgc Cys Fro Ser	coo tos ago oto Pro Ser Ser Leu	ggg qgc caa cot oft gg Gly Gly Gln Pro Leu Gl	g agt cot agg 6528 y 61y Pro Gly

		2165	2170	2178	
	ago ogg son at Ser Arg Fro L 21	ys Lys Lys Leo	. ago cos opo agt : . Ser Pro Pro Ser : . 2185	sto tot ata gat coo Ne Ser Ne Asp Pro 2190	6576
10	coq qaq aqc c Pro Glo Ser G. 2195	ag ggo tol cag In Sly Ser Arg	cos cos tga ega (Pro Pro Cys Ser) 2200	oot ygt gee tye eta Pro Gly Val Cys L+0 2205	5624
10	agg agg agg g Arg Arg Arg A 2215	ty ody god agt la Pro Ala Sai 2215	Asp Ser Lys Asp	occ tog got toc ago Pro Ser Val Ser Se t 220	8672
15	occ off gac a Pro Leu Asp S 2225	go acq got got er Thr Ala Als 2230	tos coc tec cos : Ser Pro Ser Pro : 2235	aag aas gac acg clg Lys Lys Asp Thi Leu 2240	6720
20	agt ott tot g Ser Lau Ser G	gt ttg tot to: ly Leu Ser Ser 2245	gec coa aca gec : Asp Pro Thr Asp t 2250	sta qua occ Met Asp Pro	6762
25	<210> 6 <211> 6795 <212> DNA <213> Rattus	āg			
30	<220> <221> CDS <222> (1)(6	795)			
33	<400> 6 atg gac gag g Met Asp Glu G i	ag gag gat gg: lu Glu Asp Gl)	r gog ggo geo gag : / Ala Cly Ala Glo : 10	qaq toq gos caq coo Glu Ser Gly Glo Pro 15	48
40	Arg Ser Phe T	og dag otd aa: hr Gln Leu As: 20	t gac ctg too ggg : n Asp Leu Ser Gly : 25	god ggg ggd dyg dag Ala Gly Gly Arg Gln 30	98
45	ggg ccg ggg t Gly Pro Gly S 35	cy acy gas as er Thr Glu Ly:	g gac cog ggc agc . s Asp Pro Gly Ser . 40	gog gas tes gag gog Ala Asp Ser Glu Ala 45	148
**************************************	gag ggg erg c Glu Cly Leu P 50	og tac cog go ro Tyr Pro Al. S	a Leu Ala Pro Val	gtt ttc ttc tac ttg Val Phe Phe Tyr Leu 60	192
50	ago cay gat a Ser Gin Asp S 65	ge ege eeg eg er Arg Pro Ar 70	g age tgg tgt ctc g Ser Trp Cys Leu 75	cgt acg gtc tgt asc Arg Thr Val Cys Asn 80	240
35	ccq tqq ttc q Pro Trp Phe C	iag oga gto ag Nu Arg Vai Se 85	t atg stg gtc att r Met Leu Val Ile 90	ott ofc asc tgt gtg Leu Leu Asn Cys Val 95	288
60	Thr Leb Gly M	rg tto agg oc Set Phe Arg Fr OG	g tgt gag gac att o Cys Giu Asp Ile 105	ged tgt gas tes sag Ala Cya Asp Ser Gin 110	336
	oge tạc ogg a Arg Cys Arg l 115	ito otg cag go le Leu Glo Al	c the gat gas the a Phe Asp Asp Phe 120	ate tit go: tiv tit lle Phe Ala Phe Phe 125	384

s. S. San	gct Ala	otg Val 130	gáa Glu	atq Mer	783 303	gtg Val	aag Lys 135	atg Mat	gig Val	gos Ala	pro Leu	000 617 140	acz Tie	80 8	ggg Sly	ràs	432
1 3	asa Lys 145	tņt Cys	tac Tys	cty Lec	gga Gly	gac Asp 150	ect Tho	Trp 299	aac Asn	Arg	207 Løu 188	gaç Asp	rrr ede	570 868	ant Tie	gto Val 160	480
10	stt Ile	gca Ala	999 31y	arq Met	etg Leu 165	gag Slu	cat Tyr	Ser cog	ctq Les	gac Asp 170	ctg Leu	tağ Gln	aac Asn	gco Vai	agc Sex 175	tta Phe	528
13	rco Ser	gca Ala	gtc Val	agg Arg 180	aca Thr	gto Val	ogt. Arg	geg Val	otg Leu 185	cga Arg	erg 910	ete Leu	agg Arg	gcc Ale 190	att Ile	aat Asn	378
20	yrd cdd	gtg Val	000 Pto 195	agc Ser	atg Met	ogc Arg	att Tim	ctc Leu 200	gtc Val	aca Thr	tta Leu	ceq	crg Leu 205	gac Asp	acc Thr	ttg Leu	624
	300 008	atq Met 210	ctg Leu	ggo	aac Asn	Val gro	ong Leu 213	ctg	ctc Leu	cha pár	ttc She	tto Phe 220	yal Yal	ror Phe	ric 208	stc lle	672
25	tt: Phe 225	Cly	etc The	gtg Val	217. 350	gtc Val 230	cag Glo	otg Leu	tog Tep	gca Ala	gga Gly 235	otg Læu	cot Leu	ogc Arg	sac Aso	240 240	450
30	tgc	tta Phe	ato Leo	870 000	gag Glu 245	aac Asn	ttc Phe	ger. såc	ctc Leu	aca 810 250	ctg Leu	agc Set	gtg Val	gac Asp	255 CEQ	gag Glu	768
35	ect 820	tat Tyr	tac Tyr	caq Gln 360	aca Thr	gag Glu	aat Aso	gag Glu	gac Asp 265	gag Glu	ger	pro	ttc Phe	atc Ile 270	tgc Cys	tet	818
40.	cag Gin	cot Pro	099 Arg 275	Glu	aat Asn	CTÀ Gàc	atg Sek	aga Arg Z80	Ser	tąc Cys	agg Arg	agt Ser	gtg Val 285	gro	aca Thr	ctg Leu	864
	cgt Arg	999 61y 290	Glu	ggc Gly	Gly	ggt Gly	990 61y 295	cca Pro	Pro	tgc Cys	agt Ser	utg Leu 300	gac Asp	tat Tyr	G10 gag	acc Thr	912
45	tat Tyr 305	aac Asn	agt Ser	tcc Ser	agc Ser	aac Asn 310	Thr	acc Thr	tgt Cys	gtc Val	aac Asn 315	2,2,33	aac Aan	nag Gln	tac Tyr	tat Tyr 320	960
50	acc Thr	aac Asn	tgc Cys	tos Sez	gcg Ala 325	Gly	gæg Glu	cac His	aac Asn	ccc Pro 330	500	aaa Lys	ggc Gly	gcc Ala	atc 11: 335	aac Asn	1908
33	tst Phe	gac Asp	aac Asn	att Ile 340	Gly	tat Tyr	gcc Ala	rgg Trp	ato lie 345	Ala	atc Ile	ttc Phe	caç Gln	gto Val 350	Ile	aca Thx	1056
60	ctq Leu	្នាងព្ ទៀប	ggc Gly 355	Trp	gt¢ Val	gac Asp	atc	arq Met	LAR	ttc Phe	gta Val	atq Met	gac Asp 365	ಹಿಸಿದ	cac Ris	toc Ser	1104
	ttc Phe	tac Tyr 370	- A30	ttc Phe	arc	tac Tyr	550 8he 375	lik	gtt Lev	etc Leu	atc Tle	arc Die 380	ya1	ggc G1)	to: Sez	Pag Safg	1132

න්වීම අදාල අතර අතර උදාල පසුව එදාදී ඉදාල අදාල අදාද අපව අපව වන්න විසින් විවිධ 989. The Met Tie Aso Leu Cys Leu Val Val III Ala Thr Gin Fhe Ser Glu 385 and see oag ogg gag agt bag ong ang ogg gag bag ogt gra ogs 572 Thr Lys Gin Arg Gin Ser Sin Lou Met Arg Giu Gin Arg Val Arg Phe -830 1296 10 obg too aat got age acc obg goa age the tot gag coa ggc age too Led Ser Asn Ala Ser Thr Led Ala Ser Phe Ser Glu Pro Gly Ser Cys tar gag gag one ord eag tac ctd grg tac arc ctc oge see god god Tyr Glo Slo Leo Leo Lys Tyr Leo Val Tyr Ile Leo Arg Lys Ala Ala 13 435 1398 ga agg ctg gad bag gtc hot agg gut ata ggz gtc ggg gut ggg gtc Arg Arg Leu Ala Gin Val Ser Arg Ala Ile Gly Val Arg Ala Gly Leu 20 \$55 1440 වසිට මල්ට මල්ට වටම ඉදිල් මුසට වඩුදු මල්ද ප්පිස් ප්පිස් එමේ ප්මේ ප්රත සමසි වඩට මසිදු සිමුව Leu Ser Ser Pro Val Ala Arg Ser Gly Gln Glu Pro Gln Pro Ser Gly 25 1488 ්ෂව වීම්මු මුවට වීමට වීමට වර්ඩු විවර විවර එහින ඒවල් එයේ පෙල් එහුරු එහුළු උතුළු Ser Cya Thr Arg Ser His Arg Arg Leu Ser Val His His Leu Val His 485 3.838 30 950 Pak PPP 788 JPP PJD 989 981 980 380 380 380 385 385 385 385 His His His His His His His Tyr his Leu Cly Ash Cly Thr Leu 1584 aga get don ogg goe ago coa gag ato tag gan agg gat goe aak yyg 35 arg val Pro Arg Ala Ser Pro Glo Ile Gin Asp Arg Asp Ala Asn Gly 医高温度 tot ogo ogg oto stg ots oce oce oct tot ace oct art occ for 999 Ser Ary Ary Leu Met Leu Pro Pro Pro Ser Thr Pro Thr Pro Ser Gly 40 ggs set seg agg ygt geg gag tet gta cas age tto tac cat get gas 1680 Gly Pro Pro Arg Gly Ala Glo Ser Val His Ser Phe Tyr His Ala Asp 550 343 43 1728 tgc cac ttg gag coa gto cgt tgc cag gca ccc cct ccc aga tgc cca Cys Bis Leu Clu Pro Val Arg Cys Gln Ala Pro Pro Pro Arg Cys Pro 3736 30 tog gag gos tet ggt agg act gtg ggt agt ggg sag gtg tau dur act Ser Glu Ala Ser Gly Ard Thr Val Gly Ser Gly Lys Val Tyr Pro Thr 580 1824 gig car ace age eet ees ees gad ats etg aag gat aaa ges eis eit gid Val His Thr Ser Pro Pro Pro Glu Ile Leu Lys Asp Lys Ala Leu Val 595 gay gty god cod ago cot ggy cod dod aco oto aco ago tto aac ato Gla Val Ala Pro Ser Pro Gly Pro Pro Thr Leu Thr Ser Phe Asn Lla 60 1920 coa cot qqq coc tta age too atq cae aag cto ctq qag aca caq agt Pro Pro Gly Pro Phe Ser Ser Met His Lys Leu Leu Slu Thr Glo Ser 630 635 625

1	acq q	ja s Ly A	cc : la (.γ.«	cat Ris 645	ago Ser	iob Sex	tgc Cys	aaa Lys	ato Ile 650	tee Ser	agc Ser	oon Pro-	tgt Cys	000 S≋¢ 656	ràa sec	1,968
	ges y Ala A	ac a sp S	er ()qa 31y 560	gcc Ala	tec Cys	Gly GGG	520 cc2	gac Asp 665	agt Sør	tgt Cys	\$20 200	tac Tyr	ogt Cys 870	god Ale	8.03 8.03	2035
10	aca g	ly A	ca s la 0 75	gga Sly	gag Giu	\$20 008	Siu	101 891 680	got Ale	gac Asp	cat His	gtc Val	atq Met 685	nat Esu	gac Asp	tça Ser	2064
13	gac a Asp 8 6	90 9 85 G 90	ag (lu ?	get ila	grg Val	tat Tyg	989 614 695	rrs Phe	aca The	cag Gin	gac Asp	got Ala 700	cay Sin	cac Kia	aqt Ser	gac Asp	2112
20	ctc c Leu A 705	99 9 29 A	at (sp i	uat Pro	cac Ais	ago Ser 710	ogg Azg	agg Arg	cga Arg	caq Gln	cgg Arg 715	ago Ser	CTQ CTQ	ggz	cca Pro	gat Asp 720	2180
25	gca q Ala S	ag c lu f	rda kar	3€€	tot Ser 725	gtg Val	ctg Leu	gct Ala	tto Pha	tgg Trp 730	agg Arg	ctg Leu	ato Ila	Cys	gac Asp 735	aca Thr	2208
Sept. Sept.	tto c Foe A	gg a rg 1.	ys i	acc Tle 740	gta Val	gat Asp	agc Sec	aaa Lys	tac Tyr 745	tot Phe	ggc Gly	ogg Arg	gga Gly	ato Ile 750	atq Met	sto Ile	2258
30	gct a Ala I	le L	tg (.eu (55	gto Val	aat Asn	aca Thr	ete Lau	agc Ser 760	atg Net	Gly ggs	ats Ile	gag Slu	tac Iys 768	cac His	Glu Glu	Cin-	2308
33	sco g	ag q 1u 0 70	ag : lu :	sto Leu	acc The	ăăC Asn	gcc Ala 775	ctg Leu	gaa Glu	atc Ile	agc Ser	aac Asn 780	ato Ile	gto Val	rrc Phe	acc Thr	2352
40	ago c Ser L 785	to t eu F	tc (gee Ala	ttg Leo	gag Glu 790	atq Met	org Leu	crq Leu	aaa Lys	ctq Leu 795	ctt Leu	gtc Vel	tac Tyr	ggt Gly	800 800 800	2400
43	ttt g Phe G	go t ly 1	ac .	ann Ile	aaq Lys 805	aet Asn	ccc Pro	tac Tyr	aac Asn	atc Ile 810	ttt Phæ	gat Asp	ggt	gtc Val	att Ils 815		2448
3,4	qtc a Val I	to a le S	3.39	gtg Val 820	tgg Trp	989 Glu	att Ile	gtg Væl	ggc Gly 825	cag Gln	Gln cag	gga Gly	ggt Gly	830 830	176573	zog Ser	2496
50	gtg s Val L	ರಾವ ಕ	:gg \£g 35	acc Thr	ttc Phe	cgc Arg	ctg Leu	arg Met 840	ogg Arg	gtg Val	ctg Leu	aag Lys	ctg Leu 845	gtg Væl	ege Arg	tto Phe	2544
55	cty c Leu P 8	cg q ro / S0	AT 9 ACC	atg Leu	cag Gln	cąc Arg	caç Gin 855	ctc Leu	gtg Vai	gtg Val	otc Lea	atq Met 860	aaq Lys	acc Thr	etg Met	gac Asp	2892
60	880 Q Asn V 863	ty (la Na	acc Thr	trc Phe	tgc Cys 870	atg Met	ctc Leu	ctc Leu	atg Mat	cts Leu 875	tto Phe	atc ile	tto	atc Ile	etc Phe 880	2640
	ago a Ser I	tc : le I	otg Jeu	GIY ggc	atq Met 985	823	ctc Leu	rtc she	ggt Gly	tgc Cys 890	aag Lys	rtc Phe	gca Ala	tor Ser	gaa Glu 895	Arg	2688

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	gat Asp	999 01y	gac Asp	900 900	tog Leu	oca Pro	gac Asp	ogg Avg	aag Lys 905	aat Aso	tre Bue	gac Asp	Sat	019 185 916	ote Leu	tgo Trp	2736
	gco Ala	etc Ile	gto Val 915	aot Ter	gto Yal	ttt Phe	caq Gin	ett 11e 920	etg Løu	act The	cag Slo	988 019	gac Asp 925	1.00 1.00	sat Asn	333 Lys	2784
10,	gtc Val	cre Leu 930	tac Tyr	aac Asn	Gly	atg Met	pac Ale 935	ser Ser	aca Thr	tog Ser	tet Ser	093 Trp 340	gt: Als	got Ala	ott Leu	tac Tyr	2632
13	ttc Phe 945	ato Ile	gee Ala	erc	atq Met	act Tor 950	ttt ens	gga	aac Asn	tat Typ	gtg Val 955	cta Leu	ttt Yhe	883 Aso	otg Løu	ctq Leu 960	2880
20	Val Stg	goo Als	art Ile	ott Leu	qtq Val 965	gaa Glu	gga Gly	ttc Ene	cay Gin	gca Ala 970	gag Glu	GIY gga	gat Asp	occ Ala	acc Thr 375	aag Lys	2928
200	tat Ser	gag Sin	tca Ser	980 Giu 983	005 005	gat Asp	tro Phe	ttt Phe	tog Ser 985	pro	agt Ser	grg Val	qas Asp	990 990	gat Asp	gga Gly	2370
25	gac Asp	aga Arg	889 Lys 995	aaq Lys	ogo Arg	trg Les	843	ctç Leu 1000	gtg Val	gct Ala	ttg Leu	Silv	988 Glu 1005	cac Sis	gsg Ala	gaa Glu	3024
30	s est	ega Arg 1010	aag Lys	agc Ser	ctt Leu	Lau	cca Pro 1015	Pro	orc Leu	atc Ile	Tis	cat His 1020	acq Thr	got Ala	gog Ala	aca Thr	3072
33	cca Pro 102	Met	tca Ser	cac Sis	Pro	389 Lys 1030	ago Ser	toc Ser	agc Ser	Thr	ggt Gly 1035	gtg Val	ggg Gly	gaa Glu	Ala	ctg Lea 1040	3120
40	gac Gly	tet Sər	ggc Gly	Ser	oga Arg 1945	cgt Arg	acc Thr	agt Ser	Ser	agt Ser 1050	ggg	tcc Sec	gct Ala	Glu	oot Ero 1055	gga	3168
s. S	get Ala	gec Ala	Ris	cat 810 1060	Giu	etg Met	aaa Lys	Cys	009 P20 1065	520	agt Ser	gor Ala	Arg	agc Ser 1070	Sex	ero Pro	3316
45	cac His	Ser	есе Эго 1075	Trp	agt Ser	gcg Ala	979	açc Ser 1080	Ser	tgg Top	acc Thr	Ser	agg Arg 1085	Arg	coc Ser	agc Ser	3264
50	agg Arg	aac Asn 1090	Ser	ctg Leu	ggc	Arg	gcc Ala 1095	320	agc Ser	cta Leu	aaq Lys	cgg Arg 1100	Arg	890 890	ecq Pro	agc Ser	3312
3 5	999 Gly 110	CO.U	cgg Arg	agg Arg	202	ctq Leu 1110	િલ્લા	tot Ser	gga Gly	Glu	ggc Gly 1115	Gla	gaç Glu	agt Ser	⊆ag Gln	gat Asp 1120	3360
60	gaç Glu	(Glu	gaa Glu	302	tca Ser 1125	Glu	gag Glu	gac Asp	Arg	gcc Ala 1130	Sex) 00%	gca Ala	ely ego	agt Ser 1135	gas Aap	3408
	cat His	cgc Arg	818	. agg Arg 1140	Gly	too Ser	Leu	ંઉદ્રેશ	ege Arg 1145	ಾಸಿಟ	goc Ala	aag Lys	2842	tos Ses 1150	, <u>B</u> jjie	gac Asp	3456

580 s.	ong con sec ech ong cas guy ong ggg ong cas ogo ana gun ago ggm Leu Pro Asp Thr Leu Gin Val Pro Gly Leu His Ang The Ala Ser Gly 1155 1160 1165	3504
. .	tgg age tot god tot gag cao caa gad tgt aat ggd aag tog got toa Ang Ser Ber Ala Ser Glo Hia Gin Asp Cya Ash Gly Lya Ser Ala Ser 1176 - 1175 - 1180	3552
10	ggg cgt trg gcc cgc acc ctg agy act gat gat ccc cas ctg gan ggg Gly Arg Leu Ala Arg Thr Leu Arg Thr Asp Asp Pro Glo Lau Asp Gly 1185 1190 1195	3600
13	qar gat gar aar gat gag gga set otg ago aas ggg gas ogo ara cas Aso Aso Aso Aso Glu Gly Aso Leu Ber Lys Gly Glu Aro Ile Gin 1205 1210 1215	3648
20	goo tag gto aga too ogg off cot goo tat tao oga gag caa gat too Ala Tep Val Arg Ser Arg Leu Pro Ala Cys Cys Arg Glu Arg Asp Ser 1220 1225 1230	3696
23	Tip Ser Ala Tyr Ila Phe Pro Pro Glin Ser Arg Phe Arg Leu Lau Cys 1235 1240 1246	3748
a	cac egg ato are ase sac asg atg tit gat cat gtg gts bio gic atc His Arg Ile Ile Thr Ris Lys Met Phe Asp His Val Val Leu Val Ile 1250 1255 1260	3792
30	lle Phe Leu Asn Cýs lle Thr Ils Ála Mef Ğlú Arg Pro Lys Ile Ásp 1265 - 1270 - 1275 - 1280	4 4 2 2 2
35	ccc cac age get gag ege ato the etg acc etc tec ase tac ato the Pro His Ser Ala Glu Arg lie Phe Leu Thr Leu Ser Asn Tyr lie Phe 1285 1290 1295	3888
40	Thr Ala Val Phe Leo Ala Gio Met Thr Val Lys Val Val Ala Leo Gly 1300 1305 1310	3936
43	tog top tit gog gas mas som tad otg ogd age age tog aat gtg otg Tip Cys Phe Gly Gly Gly Ala Tyr Leu Arg Ser Ser Trp Asn Vai Leu 1315 - 1320 - 1325	3984
Te.26.	gac ggc ttg ctg gtg ctc atc tcc gcc atc gec atc ctg gtc tcc atg Asp Gly Leu Leu Val Leu Ile Ser Val Ile Asp Ile Leu Val Ser Met 1330 1335 1340	403E
30	gto too gan ago ggo aco asg ato ott ggo atg otg agg gtg otg ogg Val Ser Asp Ser Gly Thr Lys lie Leu Gly Met Leu Arg Val Leu Arg 1345 1350 1360	4080
55	ote ote one acc ote one ote at any gio ato ago one one gentless Less Arg Thr Less Arg Pro Less Arg Val Ile Ser Arg Ale Gin Gly 1365 1370 1375	
60	oig eag cig gig gia gag act ong aig toa too oic asa one att ggo Leu Lys Leu Val Val Glu Thr Leu Met Ser Sar Leu Lys Pro Ile Gly 1380 1385 1390	
	asc att gtg gtc att tgc tgt gcc ttc ttc atc att iit gga att cic Asn Ile Val Val Ile Cys Cys Als Phe Phe Ile Ile Phe Gly Ile Leu 1395 - 1405	4224

	gos gog cag one the ass gon seq the the ong tot cag got gad gad Gly Val Gln Leu Phe Dys Gly Lys Phe Phe Val Cys Gln Gly Glu Asp 1410 1420	4272
. .	acc agg aec acc act aac aas too gae tgo got gag god age tac cgs Thr Arg Asn Ile Thr Asn Lys Ser Asp Cys Ala Glo Ala Ser Tyr Arg 1425 - 1430 - 1435 - 1440	¥320
10	tgo gir egg cac mag tac mmc tit gan mmn sty gon can gon old alg Trp Val Arg His Lys Tyr Asn Phe Asp Asn Leu Gly Glo Ais Leu Met 1445 1455	4368
12	too ong the god ong god too asg gat ggt tgg gtm gad and ang ben Ber Leu Phe Val Leu Ala Ser Lys Asp Cly Trp Val Asp Ile Met Tyr 1460 1465 1470	4436
20	Asp Gly Leu Asp Ala Val Gly Val Asp Gln Gln Pro lie Met Asn His 1475 1480 1485	4463
25	Aso Pro Trp Met Leu Leu Tyr Phe Tle Ser Phe Leu Leu Ile Vel Ala 1490 1495 1500	
ng ngangang ng nganggang ng n	tto the gro org eac and the groups groups groups and her can Phe Phe Val Leu Asn Met Phe Val Gly Val Val Val Glu Asn Phe His 1505 1510 1520	4569
30.0	aag tgo aga cag can cag gag gag gag gog agg ogg ogt gag bys Cys Arg Gin His Gin Gin Gin Gin Aie Arg Arg Arg Gin Gin Gin Gin Gin Gin Gin 1525 1530 1535	4608
35	aag oga ota ogg agg otg gag aam mag aga agg aat ota atg tig gad Lys Arg Leu Arg Arg Leu Glu Lys Lys Arg Arg Asn Leu Met Leu Asp 1540 1550	4636
40	gat gte att got top ggo ago toe god ago got gog toe gee god can App Vel lie Ala Ser Gly Ser Ser Ale Ser Ale Ale Ser Glu Ale Glo 1555 1560 1565	4704
43	tgc aag coc tec tec tet gas tac tog aga tto ogg hin oft gib cas Cys Lys Bro Tyr Tyr Ber Asp Tyr Ser Arg Phe Arg Leu Leu Val His 1570 1575 1580	\$752
	cac ctg tgt and age cac tac ctg gad ctd ttd atc act ggt gtd and His Leu Cya Thr Ser His Tyr Leu Asp Leu Phe lle Thr Gly Val Ile 1585 1590 1595	4800
50	ggg ong wat gtg gto sot stg god ang gas can tad dag dag dod dag Gly Leu Asn Val Val Thr Met Ala Met Glu His Tyr Gln Gin Pro Gln 1605 1610 1615	4848
33	ato ong gao gag got ong mag ato igo mat tao ato int aco gio mito. The Leu Asp Giu Alm Leu Lys The Cys Asn Tyr Ile Phe Thr Val Tie 1620 1625 1630	4896
60	ttt gtc ttt gag toa gtt ttc aaa oft gtg god ttt ggc ttd ogd ogt Phe Val Phe Glu Ser Val Phe Lys Leu Val Ala Phe Gly Phe Arg Arg 1635 1640 1645	1941
	tto tto cag gas agg tgg aso cag ctg gso ctg gct att gtg ctt ctg Phe Phe Gin Asp Arg Tro Asn Gin Leu Asp Leu Ala Ile Val Leu Leu 1850 1855 1860	4932

Š	too ato atg one atc aca otg gag gag att gag glo eet otg tog bty Ser Ile Net Gly Ile Thr Leu Glu Glo Ile Glu Val Ash Leu Ser Leu 1665 1670 1675 1680	5000
. ₹	cee ate ase eee ate ate est ate aty agg glg etc est att get Pro Ila Aso Pro Thr Ila Ila Arg Ila Mat Arg Val Lau Arg Ila Ala 1685 1690 1695	5088
10	oge gtt ctg aag etg ttg eeg atg gtt gtg ggc atg cyg gce ctg ctg Arg Val Leu Lys Leu Lys Met Ala Val Gly Met Arg Ala Leu Leu 1700 1705 1710	5136
15	cac acq gtg atq mag god the cot tag gtg ggg ass the gga cth the His Thr Val Mer Gin Ala Len Pro Gin Val Giy Asn Leu Giy Leu Leu 1715 1720 1723	5184
20	tro sty tra tty ttt bio sto tre gos got ote ggo gin gay oto til Phe Met Leu Lau Phe Phe Ile Phe Als Als Leo Gly Val Glu Leu Phe 1730 1735 1740	
380	gga gac org gag tgt gat gag aca cac oct tgt gag ggc trg ggt ogc Gly Asp Leu Glu Cys Asp Glu Thr His Pro Cys Glu Gly Leu Gly Arg 1745 1750 1750	5280
	cat got acc tit agg eac tot ggt atg got tit org acc ott to oga His Ala Thr Phe Arg Asm Phe Gly Met Ala Phe Leu Thr Leu Phe Arg 1765 1770 1775	3328
30	gto too act ggt gas aac tgg eet ggt att atg aag gas acc cts cgg Val Ser Thr Gly Aap Aan Trp Aan Gly Ile Met Lya Aap Thr Leu Arg 1780 1785 1790	5376
33	gas tot gas sag gag tos acc tos tas aas act gto atc tos cot atc Asp Cys Asp Gin Giu Ser Thr Cys Tyr Asn Thr Val lie Ser Pro Iie 1795 1800 1805	5424
40	tac ttt gtg tcc ttc gtg ctg acg gcc cag ttt gtg ctg gtc aac gtg Tyr Phe Val Ser Phe Val Leu Thr Ala Gin Phe Val Leu Val Asn Val 1810 1815 1820	5472
:45	gtc ata get gtg etg atg aag cac etg gaa gae aac aaa gag ged Vai lie Ala Vai Leu Met Lys Ris Leu Glu Giu Ser Asn Lys Glu Ala 1825 1830 1835 1840	5520
	aag gag gag goo gag eto gag goo gag otg gag otg gag atg aag acg Lys Glu Glo Ala Glu Leu Glu Ala Glo Leu Glu Leu Glu Met Lys Tho 1845 1850 1855	5568
50	ord ago dog dag doc dad tod dog dtg ggd ago doc tro otd tgg doc Leu Ser Pro Glo Pro His Ser Pro Leu Gly Ser Pro Phe Leu Trp Pro 1860 1865 1870	5616
(\$\$)	ggg qtg gag ggt gtz aac agt act gac agc cct aac cct ggg gct cca Gly Val Glu Gly Val Asn Ser The Asp Ser Pro Lys Pro Gly Ala Pro 1875 1880 1888	\$664
60	car acc act goo car att gga gos goo tog ggo tto too cit gag cac His Thr Thr Ala His Ile Gly Ala Ala Ser Gly Phe Ser Leu Glu His 1890 1895 1900	5712
	cod acg atg gta cod cod cod gag gag gtg coa gtd cod sta gga coa Pro Thr Met Val Pro His Pro Glu Glu Val Pro Val Pro Leu Gly Pro 1905 1910 1915 1920	5750

: 1 : 1	gas ong ong act grg agg asg tot ggh gid agd ogg ang ost for ong Asp Leu Leu Thr Val Arg Lys Ser Gly Val Ser Arg Thr His Ser Leu 1925 1930 1835	5808
	our aan gad agd tau aug 190 ogd aar ggg agd act got gag aga too Pro Asn Asp Ser Tyr Mat Cys Arg Aso Gly Ser Thr Ala Gla Arg Ser 1940 1945 1950	3856
10	cta gga cac ayg gyc tgy ggg ctc coc asa gcc cag tos ggc toc atc Lau Gly His Arg Gly Trp Gly Leu Pro Lya Ala Gln Bar Gly Sar Tla 1955 1960 1965	5904
15	ttg too git can too cas one gos gan and ago tgo ato one cag out Lau Ser Val His Ser Glm Pro Ala Asp Thr Ser Cys Ila Lau Glm Lau 1970 1975 1980	5952
20	coc ass gat gig car tar sig oto cay cot cat ggg gos coc acc tgg Pro Lys Asp Val His Tyr Leu Leu Gin Pro His Gly Ale Pro Thr Trp 1985 1990 1995 2000	6000
25	ugo doc ato not asa one cod nos cot ugo ogo teo con pro gor cag Gly Ala lim Pro Lya Leu Pro Pro Pro Gly Arg Smr Pro Leu Ala Gln 2003 2010 2015	8048
	agg cot one agg oge cag goa goa ata agg act gac too otg gat gtg Arg Bro Leu Arg Arg Sin Ala Ala Ile Arg Thr Asp Ser Leu Asp Val 2020 2025 2030	6098
30	cag ggc ctg ggt agc cgg gaa gat ctg ttg tta gag gtg agt ggg ccc Gin Gly Len Gly Ser Arg Glu Axp Len Len Ser Glu Val Ser Gly Pro 2035 2040 2048	5144
35	tee tgo cot ctg acc egg tee tea tee tto tgg ggc ggg teg age atc Ser Cys Pro Leu Thr Arg Ser Ser Ser Phe Trp Gly Gly Ser Ser Ile 2050 2055 2060	613 2
-40°	caq qtq sag cag cgt tee ggc ate cag age aaa gto tee eag cac ate Gis Vai Gis Gis Arg Ser Gly lie Gls Ser Lys Val Ser Lys His Iie 2065 2070 2075 2080	6240
45	cgc etg eem god oot tgc com ggo etg gas coc age tgg god mag gac Arg Lew Pro Alm Pro Cys Pro Gly Lew Glu Pro Ser Tro Alm Lys Asp 2085 2090 2095	6288
	cet one gag ace aga age age the gag ong gas acg gag ong age tag Pro Pro Glu Thr Ang Ser Ser Leu Glu Leu Asp Thr Glu Leu Ser Trp 2100 2105 2110	6338
30	att toa gga gac one oft ook ago ago cag gaa gaa coo otg tro coa lie Ser Gly Asp Leu Leu Pro Ser Ser Gln Glu Glu Pro Leu Phe Pro 2115 2120 2123	6384
33	ogg gas stg sag sag tgo tac agt gta gag acc sag ago tgo agg ogc Arg Asp Lew Lys Lys Cys Tyr Ser Val Glu Tho Glo Ser Cys Arg Arg 2130 2135 2140	6432
60	agg out gag the tag the dat gas dag ogg aga the too att got gro Arg Pro Cly Phe Trp Leu Asp Giu Gin Arg Arg His Ser Ile Ale Vel 2145 2150 2155 2160	6480
	ago tgr ctg gac ago ggo two caa coo ogo ota tgt coa ago coo toa Sar Cys Leu Asp Sar Gly Sar Gln Pro Arg Leu Cys Pro Sar Pro Sar 2185 2170 2175	6528

S.	ago oto ggy gy: caa cot ott ggg ggt cot ggg ago cgg cot aag aaa Ser Leu Gly Gly Gln Pro Leu Gly Gly Pro Gly Ser Arg Pro Lys Lys 2180 2185 2190	6576
****	asa one ago coa coe agt ato not ana pao coo cos gag ago cag ggs Lys Leu Ser Pro Pro Ser Ile Ser Ile Asp Pro Pro Giu Ser Gin Gly 2195 2200 2203	6624
10	tot bag ood oos tgo agt oot ggt gto tgo oto agg agg agg gog cog Ser Arg Fro Pro Cys Ser Pro Gly Val Cys Leu Arg Arg Arg Ala Pro 2220 - 2215 - 2220	\$672
15	gon agt gan ton asy gat occ tog god ton ago one ott gan agg ang Ala San Asp San Lys Asp Pro San Val San San Pro Law Asp San Thr 2225 2230 2230	6720
20	got gos toa see see sag aaa gad acq otg agt sto tot ggt tig Ala Ala Ser Pro Ser Pro Lys Lys Asp Thr Leu Ser Leu Ser Gly Leu 2243 2250 2255	6763
23	tot tot gad oca aca gad atg gad occ Set Ser Asp Pro Thr Asp Met Asp Pro 2260 2265	6795
30	<210> 7 <211> 6816 <212> DNA <313> Rettus sp.	
35	<220% <221> CDS <222> (1), (6816)	
	<pre><400> 7 atg yet gag gag gat gga gcg ggc gcc gag gag ttg gga cag ccc Met Asp Ala Glu Glu Asp Gly Ala Gly Ala Glu Glu Ser Gly Glo Pro I S 19</pre>	48
40	ogt ago the eeg cag che aac gad ong too ggg god ggg ggd ogg cag Arg Ser Bhe Thr Gin Leu Asn Asp Leu Ser Giy Ala Giy Giy Arg Gin 20 25 30	96
43	යියිය රසය ජීජීම සමම මෙසේ සිමම මෙසේ සිමළ සසය පිසිස් මිසිස් සිමළ සසය සිමේ දීමේ	144
	Gly Pro Siy Ser Thr Glu Lys Asp Pro Gly Ser Ala Asp Ser Glu Ala 35 40 45	
<i>50</i>		1,82
30 33	35 40 48 gag ggg ctg ccg tac ccg gcg cta gcc ccg gtg gtt ttc ttc tac ttg Glu Gly Leu Pro Tyr Pro Ala Leu Ala Pro Val Val Phe Phe Tyr Leu	192
	35 40 48 gag ggg ctg ccg tac ccg gcg cta gcc ccg gtg gtt ttc ttc tac ttg Glu Gly Leu Pro Tyr Pro Ala Leu Ala Pro Val Val Phe Phe Tyr Leu 50 53 60 age cag gac age cgc ccg cgg age tgg tgt ctc cgc acg gtc tgt æac Sar Gln Asp Ser Arg Pro Arg Ser Trp Cys Leu Arg Thr Val Cys Asn	

	oga Arq	28 28 28 2	cyg Arg 115	atc Ile	trg Leu	cag Gin	gcc Ala	120 120	gat Asp	380 88p	ttz Phe	ata Ile	125 \$%+ \$12	god Ala	Ebe Ebe	ttt 9he	384
	gor Ala	giq Val 130	Siu	atg Met	Val Val	gtg Val	aaq Lys 135	atg Mer	gtg Val	gco Ala	ttq Leu	995 Gly 140	ato Ile	viit Phe	Giy gga	asg Lys	432
10	ass Lys 145	tot Cys	tac Tyr	ctq Leu	gga Gly	qac Asp 150	sct Thr	tyg	aac Asn	egg Arg	ott Leu 155	gar Asp	tti Spæ	tac She	ait	gtc Val 160	**************************************
15	att	gca Ala	Gly aga	atg Met	crq Leu 168	gag Glu	tat Tyr	tcq Ser	ctg Leu	gac Asp 170	ctg Læu	caq Sin	aac Asc	Yal 3to	#GC Ser 175	eds eds	**************************************
20	tod Ser	gca Ala	gtc Val	180 V13 *33	aca Thr	gtc Val	ogt Arg	Val GEG	otg Leu 185	cgs Arg	oog Pro	Leu	äşş	900 Ala 190	att Ile	aac Aso	\$ 7 &
in the state of th	egg	gtg Val	ecc Pro 195	agc Ser	atg Met	ogo Arg	att	ata Leu 200	gtc Val	aca Thr	tta Leu	obg Leu	otg Leu 205	gac Asp	acc Thx	ttg Deu	824
25	ect	atg Met 210	ctq Lea	Gly	aac Asn	gto Val	otg Led 213	ctg Leu	ctc Lea	tgt Cys	ttc Phe	ttc Phe 220	gts Val	tit She	tra Phe	atc Tie	\$ ## Z
30	ttt Phe 225	ggc Gly	atc	grg Val	ggc	gtc Val 230	cag Gin	atg Leu	tag Tep	gos Ala	235 335	ctg Les	ott Leu	Arg	aac Asn	egg Arg 240	720
35	tgc Cys	tto Phe	Leu	aca Pro	989 610 245	aac Aso	orr edq	agc Ser	ctc	ccc Pro 250	cty Leu	agc Ser	gtg Val	gac Asp	otq Leu 255	gag Glu	758
40	cat	tat Ty:	tac Tyr	cag Gln 260	aca Thr	gaş Glu	aat Asn	gag Glu	gan Asp 265	gag Glu	Ser	810 acc	tt: Phe	atc 11.e 270	tgc Cys	tot Ser	915
***	cag Gln	ecc	099 Arg 275	Slu	ast Aso	GIY	atg Met	aga Arg 280	to: Ser	tgo Cys	Arg	aqt Ser	gtq Val 285	200 200	aca Thr	ctg Leu	864
¥J	ogt Arg	390 399	Glu	ggc	gat	ggt Gly	990 61y 295	cca Pro	ecc Pro	cys Cys	agt Ser	ctg Leu 300	gac Asp	tat Tyr	gag Glu	acc Thr	912
50	tat Tyr 305	Asn	agt Ser	tcc Ser	ago Ser	aac Asn 310	Thr	acc Thr	tgt Cys	gtc Val	aac Asn 315	Trp	aac Asc	cag Gin	tac Tyr	tat Tyr 320	960
55	acc Thr	aac Asn	tgc Cys	tot Set	gog Ala 325	ej aac	gaş Glu	cac Nis	aac Asn	970 330	Fne	aaa Lys	elâ dâc	gco Ala	ato Ile 335	asa	1008
v. Živenije	ttt Phe	gec Asp	aac Asn	att 11e 340	Gly	tat Tyr	gad Ala	tqq Tep	atc Ile 345	gcc Ala	atc Ile	the Phe	caq Gin	gtc Val 350	118	aca The	1056
60	stq Leo	gaç Glu	1 990 1 Gly 355	Trr	gro Val	gac Asp	atc lle	atg Met 360	Tyr	rrc Phe	gra Val	atq Met	gac Asç 365	: Ala	cac His	roo	1104

										Artists.							
	ict Phe	tec Tyr 370	aac Asn	tro Fhe	#10 11-	ta: Ty:	ttt Phe 375	att Ile	ott Leu	ctc Led	Ile Ile	atc Ile 380	grg Val	gas Gly	201 100	tro Phe	1252
.	ttd 2ne 385	arq Mes	azc Elī	aac Ase	cng Lau	одо Сув 390	oog Leu	gtg Væl	gtg Väl	att Ils	gcc Ala 335	rnr	caq Gln	tto Phe	toc Ser	949 014 400	1200
10	acc Thr	asa Lys	çağı Gla	grð cáá	939 610 463	agt Sec	cag Gin	otg Led	aty. Met	cqq Arq 416	gaq Glu	cag Gln	agt agt	gta Vəl	oga Arg 415	ttc Phe	1248
15	ctg Leu	taa Set	set Asn	gct Ala 420	agu Ser	acc	stq Leu	gca Ala	ayc Ser 425	ttc Phe	tot Ser	gag Glu	cca Pro	990 Gly 430	Ser	tgc Cys	1296
20									gtg Val							gcc Ala	1344
. 200,000	cga Arg	agg Arg 450	otg Leu	gcc Ala	Gin	gtc Val	tot Sei 455	agg Arg	gct Ala	ata Ile	Gly age	gtq Val 160	ytå cåå	gct Ala	eiy aga	ctg Leu	1392
25									GTÀ GGG							390 Gly 480	1440
30	ser	tgs Cys	act Thr	Arg	tca Ser 485	cac Ris	cgt Arg	ogi Arg	otg Leu	tot Ser 490	gtc Val	cac 8is	cac Ris	ctg Leu	gto Val 195	cac Kis	1488
35									tac Tyr 505								1536
40									stc Ile							GTA Bad	1584
									\$10 ccc								1632
45	990 61y 548	820	gro	agg Arg	ggt Gly	gcq Ala 550	gæg Glu	tet Ser	gta Val	cac Bis	aqc Ser 555	tto Phe	tac	cat His	gst Ala	gac Asp 560	1680
50	tgc Cys	cac Ris	ttg Leu	gag Glu	cca Pro 565	gtc Val	cgt Arg	cya	cag Gln	gca Ala 570	Pro	act Pro	ecc	aga Arg	tgc Cys 575	pro	1728
33	tcg Ser	gag Glu	gca Ala	tot Ser 580	gat Gly	agg Arg	act	gtg Væl	ggt Gly 585	egt Ser	G1y ggg	aaq Lys	gtg Val	tac Tyr 390	Pro	act Thr	1776
₹ 60 :									rle							gcg Val	1824
W.S.	gag Glu	gtg Val 610	goo Ala	ccc Pro	agc Ser	eet Pro	999 61y 615	ecc Pro	ecc Ero	scc Thr	Ces	acc Thr 820	agc Ser	ttc Phe	æac Asn	atc Tle	1872

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									cac His							agt Ser &40	1920
3																aaq Lys	1868
10	gca Ala	gac Asp	agt Sec	gga Gly 680	gcc Ala	tgc Cys	ejå ååå	ecq erc	gac Asp 665	egt Ser	t gt Cys	8ro ccc	tac Tyr	tg: Cys 670	god Ala	egg Arg	2018
23	aca Thr	61A 369	gca Ala 675	gga Gly	gag Glu	cca Pro	gag Glu	tes Ses 680	got Ala	gac Asp	cat His	gtc Val	etg Met 685	cut Pro	gac Asp	tca Ser	2064
20	gac Asp	agc Ser 690	gag Slu	gct Ala	gtg Val	tat Tyr	gag Glu 695	tts Phe	aca The	cag Gin	gac Asp	got Ala 700	cag Gin	cac His	agt Ser	gac Asp	21112
· · · · · · · · · · · · · · · · · · ·		Arg							cga Arg								2150
25									tto The								2203
30	ttc Phe	yrd cdd	aag Lys	atc Ile 740	gta Val	gat Asp	agc Ser	aaa Lys	tac Tyr 745	tre Phe	G17	agg Arg	GTA GAs	atc Tle 750	atg Met	ato Ile	225%
33	gcc Ala	atc Ile	ctg Len 755	gtc Val	aat Asn	aca Thr	ctc Leu	agc Ser 760	atq Met	età adc	and	gag Glu	tac Tyr 765	cac His	gag Glu	ceg Gln	2304
40	ece Pro	gag Glu 770	gæg Glu	ctc Leu	acc Thr	aac Asn	gcc Ala 775	otg Leu	gaa Glu	ato	age Ser	aac Asn 780	atc Ile	gts Val	ttc Phe	acc Thr	2352
i in the second	agc 3er 785	Len ctc	tto Phe	gcc Alæ	btg Leu	gag Glu 790	atq Met	ctg Leu	org Leu	aaa Lys	otg Leu 795	ctt Leu	gtc Val	tac Tyr	ggt Gly	ece 910 900	2400
43	ttt Phe	ggc Gly	Tyr	att	aa q Lys 805	aat Aso	pcc Pro	tac Tyr	eac Asn	atc Ile 810	ttt Phe	gat Asp	ggt Gly	gtc Val	att Ile 815	gtg Val	2448
50	gts Val	atc Ile	agt Ser	820 Vai gtg	tgg Trp	gag Glu	stt ell	gtg Vai	gge Gly 825	cag Gln	cag Gln	gga Gly	Gly ggt	gga Gly 830	ctq Lea	tog Ser	2496
55	gtg Val	ctq Leu	ogg Arg 835	acc Thr	ttc Phe	Arg	ctq Leu	arg Met 840	arg arg	gtg Val	ctg	aag Lys	ctq Leu 845	gtg Val	ogc Arg	ttc Phe	2544
60	ctg Leu	850	gcc Ala	otg Leu	ceg Gin	Arq	cag Gin 855	ata Leu	gco Val	gtg Val	ott beu	atg Met 860	aag Lys	acc Thr	atg Met	gac Asp	2592
Sec. 4.4	880 865	Val	gcc Ala	acc Thr	tto The	tgc Cys 870	Mest.	ota Leu	ctc Leu	atq Met	org Leu 875	eco Phe	355 11e	ttc Phe	atc Ile	tto Phe 880	2640

										A. A.							
	agc Ser	atc Ile	czą Leu	aga Gly	277 Met 885	cst His	utu Len	222 858	ggt	tgc Cys 896	aag Lys	ina ere	gas Als	Zar Zar	988 Glu 895	ogç Arg	2688
. 	gat Asp														L⇔0	Tag	2736
10	gcc Ala																2784
13	Vail	ctc Leu 930	tam Tyr	aac Asn	gga	acg Mer	goc Ala 935	soc Ser	aca Thr	tog Ser	tot Set	Egg Trp 940	got Ala	got Ala	ctt Leq	tac Tyr	2832
20	ttd Phe 945											crc Leu					2880
, <u>, , , , , , , , , , , , , , , , , , </u>	grg Val	gcc Ala	att Ile	ott Leu	903 Val 965	gaa Glu	gga Sly	tto Phe	cag Gin	gca Ala 970	gag Gld	Siy 308	gat Asp	şcc Ale	acc Thr 975	asg Lys	2929
Zš	tct Ser																2976
30	gec Asp	aga Arg	aaq Lys 995	aag Lys	ogc Arg	peq beu	BLA	otg Læu 1000	gtg Val	gct Ala	ttg Leu	Gly	984 Glu 1005	cac His	ALA GCG	gaa Slu	3024
33	Leu	aga Arg 010	Lys	ayc Ser	ctt Leu	Len	oca Pro 1015	eqe Pso	orc Leu	atc Tie	11%	cat Nis 1020	Thi	got Rla	gog Ala	aca The	3072
40	cca Pro 1025	Mest	toa Ser	cac His	800	eag Lys 1030	agc Ser	tet Ser	agc Ser	Thr	ggt Gly 1035	gtg Val	Gly ggg	gaz Glu	Ala	ctg Leu (046	3120
****	ggc Gly	tot Ser	era adc	Ser	cgs Arg 1045	ogt Arg	acc Thr	ayt Ser	Ser	agt Ser 1050	erà ada	toc Set	ger Ala	GLU	cot Pro 1055	G17 gga	3168
45	get Ala	gcc Ala	812	cat His 1960	gag Glu	atg Met	aaa Lys	Oys:	cog Fro L065	oca Pro	agt Ser	goc Ala	Arg	ago Ser 1070	too Ser	cog Pro	3216
50	csc His	282					£LA.					Sec					3264
53	Arg	aac Aso 090	agc Ser	otg Leu	ery	Arg	gcc Ala 1095	pro	agc Ser	zta Leu	Lys	cgg Arg 1100	agg Arg	agc	Pro	age Ser	3312
60	999 Gly 1105	Glu	cag Arg	agg Arg	Sec	otg Leu 1110	otg Leu	tot Ser	gga Gly	Qlu	gga Gly 1115	cag Gln	gaq Glu	agt Ser	gin	gat Asp 1120	3360
Note.	gaq Glu	gag Glu	gaa Glu	801	tsa Sar 1125	gaa Glu	gag Glu	gac Asp	Arg	gcc Ala (130	aqc Ser	pro	gaa Ala	Sly	agt Ser 1135	gac Asp	3408

	cat one dae agg out too top gas but gag god aay sut too too gad His Ary His Ary Cly Ser Led Glu Ary Glu Ala Lys Ser Ser She Asp 1140 1145 1150	3456
3	cty put gas act sty sag gty seg ogg sty sas ogs asa gos ago qgs Leu Pro Asp Thr Leu Sin Vai Pro Gly Leu Nia Arg Thr Ala Ser Gly 1185 1180 1185	3504
10	ogg ago tot god tot gag car cas gad tgt aat ggn aag tog got tos Arg Sar Sar Ala Sar Giu His Gin Asp Cys Ash Gly Lys Sar Ala Sar 1170 1175 1180	3532
15	ggg tgt ttg ged ege ace etg agg act gat gad een taa otg gat ggg Giy Arg Lau Ala Arg Thr Lau Arg Thr Asp Asp Bro Gin Lau Asp Giy 1198 1190 1195	3600
ൗർവ	gat gat gac aat gat gag goa aat etg age aaa ggg gas ege ata caa Aap Aap Aap Aan Aap Giu Giy Aan Leu Ser Lya Siy Siu Arg ile Gin 1205 1215	3648
70	god tog gid ega tod ogg oli och god tyt tog vea gag bjæ gat tod Ala Trp Val Arg Ser Arg Leu Fro Ala Cys Cys Arg Glu Arg Asp Ser 1220 - 1225 - 1230	3696
25	tog tog god tat atc tit cot car cag tow agg tit egt cic mig ty: Trp Ser Ala Tyr lie Phe Pro Pro Gin Ser Arg Phe Arg Leu Leu Cys 1235 1240 1265	3744
30	oac cgg atc atc acc cac sag atg fit gat cat gtg gtc ctc gtc atc Bis Arg 11e Ile Thr His Lys Met Phe Asp His Val Val Leu Val Ile 1250 1255	3792
35	ato ton one sac tot ato son all got alig gag ogo oco asa att gac Tie Phe Deu Asn Cys Ile Thr Ile Ala Met Giu Ang Pro Dys Ile Asp 1265 1270 1275 1280	3840
. an	ccc cac age got gag ego ato the ctg acc ctc ten aso tac ato the Pro His Sax Ala Glu Arg lle Phe Leu Thr Leu Ser Asn Tyr lle Phe 1285 1290 1295	3888
40	acy goa gto trt the got gam aty ace gty eag gtg gtg gca ctg ggc Thr Ala Val Phe Leu Ale Glu Met Thr Val Lys Val Val Ala Leu Gly 1300 1305 1310	3938
45	tgg tgs ttt ggg gag cag gss tas etg egs ags ags tgg aat gtg stg Trp Cys Phe Gly Glu Gln Ala Tyr Leu Arg Ser Ser Trp Asn Val Leu 1315 1320 1325	3984
30	que gge tro ero ore etc atc tec gte atc gae atc etc gte tec atg Asp Gly Leu Vel Leu lie Ser Val lie Asp Ile Leu Val Ser Met 1330 1340	4032
3 3	gto too gad ago ggo aco aag ato oft ggo atg otg agg gtg otg ogg Val Ser Asp Sex Gly Thr Lys Tia Lau Gly Mat Lau Arg Val Lau Arg 1345 1350 1360	4080
1879 No.	ctg ctg cgg acc ctg cgt cca ctc agg gtc atc agc cgg gee cag gga Leu Leu Arg Thr Leu Arg Pro Leu Arg Val lle Ser Arg Ala Gic Giy 1365 1370 1375	4128
60	ctg aag otg gtg gfa gag ast otg atg toa too oto aaa tot atf ggo Leu Lys Leu Vai Vai Glu Thr Leu Met Ser Ser Leu Lys Pro Iie Gly 1380 1380	4176

	Asn Tle 1	itg ytc Val Val 395	att tgo lia Cys	tgt gc: Cys Ala 1400	oth sto Poe Phe	ato sit t lie lle P	ri dga arr na Gly Ila JS	Coto 4224 Sec
\$			The Lys				eg ggt gæg In Gly Glu	
10	acc agg ; The Ary ; 1425	eac atc Aso Ile	act aac Thr Asn 1430	asa too Lys Ser	Asp Cya	gat gag g Ala Slu A .435	Co ago tac La Ser Tyc	cga 4370 Arg 1440
15	igg gic : Trp Val	Arg His	aay tac Lys Tyr 445	sso ttt Asn Dhe	gac aac Asp Asn 1450	rty ggs s Leu Sly S	ag yet otg In Ala Leu 1459	atg 4388 Met
20				Ser Lys			ac atc atg sp lie Met 1470	
es Se	Asp Gly	ong get Les Asp 475	got gtg Ala Væl	ggt gtg Gly Val 1480	gat cag Asp Gln	cag ccc a Gln Pro I 14	to atq aad le Met Aso 85	cac 4464 His
25	aac ccc Ass Pro 1490	tgg atg Tsp Met	Leu Leu	tac ttc Tyr Pha 1495	ato tec Ila Ser	tto oto o Phe Lev L 1500	to att grg eu Ile Vai	gen 4512 Ala
30	tto tio Pho Phe 1505	gto otg Val Leo	aac atq Asn Met 1510	tit gtg Phe Val	Gly Val	gtg gtg g Val Val G US15	ag asc tto lu Asn Phe	dat 4560 'Bis 1520
35		Arg Glo					gg cgt gag zg Arg Glu 1535	914
40	aag cga Lys Arg	cta cgg Leu Arg 1340	agg ctg Arg Leu	Glu Lys	eag aga Lys Arg 1545	agg agt a Arg Ser L	ag gag aag ys Glu Lys 1550	cag 4656 Gin
	Met Ala	gat ota Asp Leu 555	atg ttg Met Lec	gad gat Asp Asp 1560	gra att Val lle	Ala Ser G	gc agc tca ly Ser Ser 63	ges 4704 Ala
43			Glu Ala				ct gad tac er Asp Tyr	
50					Leo Cys		ac tec otg is Tyr Leu	
.35°	ctc ttc Leu Phe	Ile Thr	ggt gtc Gly Val (605	atd ggg Ile Gly	ong asc Leu Asn 1610	gtg gtt a Val Val T	ct atg gcc hr Met Ala 1615	Met
60				Gin fle			tg asq atc eu Lys Ils 1630	
. YY	Aso Tyr					Glu Ser V	tt tto ass al Phe Lys 43	

	gty god tir ggd tid bgd cgt tid tid dag gad agg tig Aed dag Sig Yal Als Phe Gly Phe Arg Arg Phe Phe Gln Asp Arg Trp Ash Gln Leu 1650 1660	4992
, 🎉 i	gad ong got ant gre ont ong too and and ggo allo and the gas gas Asp Leu Ala Ile Val Leu Leu Ser Ile Mer Gly Ile Thr Leu Glu Glo 1665 1670 1675 1680	5040
10	att gag gto eat ong tog ong eop etc eat dod ect atc atc ogt etc Ile Gig Val Asn Leu Ser Leu Pro Ile Asn Pro The Ile Ile Arg Ile 1683 1890 1685	5088
15	aty agg gtg oto oge and got oge git otg eag otg tog asg sty got Met Arg Val Leu Arg lie Ale Arg Val Leu Lys Leu Leu Lys Met Ale 1700 1705 1710	3138
ing case	grg age atg egg gea erg btg bac acg atg atg cag acc etg een cag Vai Gly Met Arg Ala Leu Leo His Tor Val Met Gin Ala Leo Pro Gln 1715 1720 1725	5184
20	qtg ggg aac etg gga ett ete tee atg tha ttg the tee ate tee gea Val Gly Asn Leu Gly Leu Leu Phe Met Leu Leu Phe Phe Ile Phe Ala 1730 1740	5232
25	got ong ggo gra gag ond int gga gan ong gag ngh gan gag aca cac Ala Leo Gly Val Glo Leo Phe Gly Asp Leo Glo Cya Asp Glo The His 1745 1750 1755	5290
30	ook tigt gag gige tig gigt eigi eat god aco titt agg aac titt gijt atg Bro Cys Glu Gly Leu Gly Arg Ris Als Thr Phe Arg Asn Phe Gly Met 1765 1770 1775	5328
33	god tot ong acc oto the ogs god too act ggt gad asd igg sat ggt Ala Phe Leu Thr Leu Phe Arg Val Ser Thr Gly Asp Ash Trp Ash Gly 1780 1785 1790	5376
238	arr ang ang gao aco one ogg gao ign gao cag gag too aco ngo tao The Men Lys Asp The Leu Arg Asp Cys Asp Gin Giu San The Cys Tyr 1795 1800 1805	5424
40	aac act goo atc too oot atc tac tot gog ope too gog ong acg goo Asn Thr Val Ile Ser Pro Ile Tyr Phe Val Ser Phe Val Leu Thr Ala 1810 1815 1820	5472
35	cag ttt gig cig gir asr gig gir ata got gig cig aig aag car cig Gin Phe Val Leu Val Asn Val Val Ile Ala Val Leu Mei Lys 81s Leu 1825 1830 1835	5520
50	gas gae ago ast asa gag goo asp pag gag goo gag oto gag goo gag Glu Glu Ser Asn Lys Glu Ala Lys Glu Glu Ala Glu Leu Glu Ala Glu 1845 1850 1855	5568
	cty gag cty gag aty any acy ctr myr cog cay coc cac toc coy cty Leu Glu Leu Glu Met Lym Thr Leu Ser Pro Gln Pro Him Ser Pro Leu 1860 1865 1870	5616
£5°	gge age one the che tag one aga gra gas gat gio aac agt act gad Gly Ser Pro Phe Leu Trp Pro Gly Val Glu Gly Val Asn Set The Asp 1875 1880 1885	5664
60	ago oot aag oot ggg get ooa dad act gcc cac att gga gca god Ser Pro Lys Pro Gly Ala Pro His Thr Thr Ala His Ila Gly Ala Ala 1890 1895 1900	\$712

	tog gg: the too och gag tar och seg stg gts for hat con gag gag Ser Gly Fna Ser Leo Glu Ris Pro The Met Val Fro Bla Pro Glu Glu 1903 1910 1915	5760
3	gig tow get occ com gos oce gas tig tig act gig agg asg tot ggt Val Pro Val Pro Leu Gly Pro Ass Leo Leu The Val Ary Lys Sar Gly 1925 1930 1935	5808
10	gro ago ogg son cao tot otg oco aat gad ago tao aty 190 ogo aat Val Ser Arg The His Set Leu Pro Ash Ash Set Tyr Met Cys Arg Ash 1940 1948 1948	5856
13	ggg ago act got gag aga too dia gga cac agg ago thy ggg cto coo Gly Ser Thr Ala Glu Arg Ser Leo Gly Ris Arg Gly Iro Gly Leo Pro 1955 1960 1965	5904
20	asa goo cag toa goo too ann tig too gtt tac too caa coa gan lys Ala Gin Ser Cly Ser Ile Leu Ser Val His Ser Cin Pro Ala Asp 1970 1975 1980	5952
	ecu ago too etc cta cey ctt coc eas get gtg tec tet ctg cto cag Thr Smr Cys lie Leu Gin Leu Pro Lys Asp Val His Tyr Leu Leu Glo 1985 1990 1995 2000	5000
23	con cat ggg gnt och acc tgg ggc gcc atc cot ass cts coc ccs &ct Pro His Cly Als Pro Thr Trp Cly Als Ile Pro Lys Leu Pro Pro 2005 2010 2015	6048
30	ggo ago aco out utg got sag agg out oto agg ogo cag goa goa afa Dly Arg Sen Pro Leu Ala Glo Arg Pro Leu Arg Arg Gin Ala Ala Ile 2020 2025 2030	8098
35	agg act gas too ong gat gtg sag ggs ong ggt ags ogg gaa gas otg Ang Thr Asp Ser Leu Asp Vai Gin Gly Leu Gly Ser Ang Glu Asp Leu 2035 2046 2046	6144
40	tig toa gag gig agi ggg boo too igo cet cig ass igg ico isa ico Leu Ser Glu Yal Ser Gly Pro Ser Cys Pro Leu Thr Aig Ser Ser Ser 2050 2055 2060	6192
737	tto tag age age ted age ato est att cag cag cat too age att cap Phe Trp Gly Gly Ser Ser Ile Glo Val Glo Glo Arg Ser Gly Ile Glo 2065 2070 2080	6240
43	ago asa gto ton and cao and ogo otg con god cot tgo com yeo otg Ser Lys Val Ser Lys His lle Arg Lau Pro Ala Pro Cys Pro Gly Lau 2088 2090 2095	6289
50	gaa ooc ago tyy goo aay gac oot ooa gag aco aga ago ago tta gag Glu Pro Ser Trp Ala Lya Aap Pro Pro Glu Thr Arg Ser Ser Leu Glu 2100 2105 2110	6336
SŞ.	ctq qae acq gag ctg age tgq att toa gga gae etc ett ecc age age Lau Asp Thr Glu Lau Sar Trp lie Sar Gly Asp Lau Lau Pro Sar Sar 2115 2120 2125	6384
60	cag gaa gas occ otg tto coa sgg gao otg aeg eag tgo tac agt gta Gin Giu Glu Pro Leu Phe Pro Azg Asp Leu Lys Lys Cys Tyr Ser Val 2130 - 2135 - 2140	6432
S.M.	gag aco cag ago tgo agg ogo agg oct ggg too tgo ota gat gaa cag Gly Thr Gln Ser Cys Arg Arg Arg Pro Gly Phe Tro Leu Asp Gly Gln 2145 2150 2160	6480

	egg aga can too att get get agn tot etg gan agn ggn tot maa sur 652 Arg Arg His Ser lie Ala Val Ser Cys Leu Asp Ser Gly Ser Gla Pro 2165 2170 2175	
	ogo dia tot ona agn one toa ago sto ggg ggn caa coi cit ggg ggt - 657 Arg Lau Cya Pro Ser Pro Ser Ser Leu Gly Gly Glo Pro Leu Gly Gly 2180 - 2185 - 2190	16
10	cot ggg ago cgg oet aag ass ass oto ago oos til agt ato fot ats 662 Pro Cly Ser Arg Pro Lys Lys Lex Ser Pro Pro Ser Ile Ser Ile 2195 2200	34
13	gac oct cog gag ago cag ggo tot ogg coc coa tgo ago cot ggo geo - 667 Amp Pro Pro Glu Ser Gln Gly Ser Arg Pro Pro Cys Ser Pro Gly Vel 2210 - 2213 - 2220	1@
	tgo oto agg agg agg gog oog god agt gad tot aag gat ood tog god - 672 Cya Leu Arg Arg Arg Ala Bro Ala Ser Asp Ser Lya Asp Pro Ser Val 2225 - 2230 - 2235 - 2240	20-
<i>20</i> % -	tor age one oft yet age acq got god ton one too one eaq ean gad 676 Ser Ser Pro Leu Asp Ser Thr Ala Ala Ser Pro Sec Pro Lys Lys App 2265 2250 2255	58
25	ecg etg agt etm for ggt ttg tot tot gac oca aca gas atg ges cos &83 The Lau Sar Lau Sar Gly Lau Sar Sar Asp Pro The Asp Mat Asp Pro 2260 2270	í Š
30	<210> 8 <211> 6741 <213> DNA <213> Rattus sp.	
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40	<400> 8 atg gac gag gag gat gga gcg ggc gcc gag gag tcg gga cag ccc 48 Met Asp Glu Glu Giu Asp Gly Ala Gly Ala Glu Glu Ger Gly Gln Pro 1 5 10	
45	cyt ago the ang dag oto ago gad otg too ggg god ggg ggd ogg Cag ⁹⁶ Ang Ber Phe Thr Gln Leu Asn Asp Leu Ser Gly Ala Gly Gly Ang Gln 20 25 30	
30	ggg cog ggg tog acg gas sag gao oog ggc ago gog gao toc gag gog 14: Gly Pro Gly Ber Thr Glu Lys Asp Pro Gly Ser Ala Asp Ser Glu Ala 35 40 45	ŝ
(a) (b)	gag ggg ctg cog tac cog gcg cta gcc cog gtg gtt ttc ttc tac ttg 19: Glu Gly Leu Pro Tyr Pro Ala Leu Ala Pro Val Val Phe Phe Tyr Leu 50 SS 60	2
33 ,	age bag gae age oge oeg ogg age tgg tgt ote oge aeg gte tgt aac 240 Ser Gin Asp Sør Arg Pro Arg Sør Trp Cys Løn Arg Thr Val Cys Asn 85 75 80	©:
60	cop byg the gag ega one agt and ong ghe ant ent the sac her ghg 280	8:
	Pro Trp Phe Siu Arg Val Ser Met Leu Val Ile Leu Leu Asn Cys Val 85 90 95	

	The	1.64	Gly	Met 100	Phe	Arg	220	OJ8	914 103	Asp	lle:	Ale	Cys	Asc 116	Ser	WIX	
: 367 ,	cac Arg	tgc Cys	ogg Arg 115	atc Tim	etg Lac	caș Glo	gcc Ala	111 202 122	gat Asp	gat Asp	şps 200	atc lle	111 765 135	#1.3 got	lle Yne	tii Phe	384
10	gct Ala	919 Val 130	gaa Slu	atg Mat	gtg Val	gtg Val	asg Lys 135	aty Mes	gtg Val	goc Ala	ttg Lea	330 61y 140	stt	111 758	ggg Gly	aec Lys	432
75															att Tie		480
***;															agc Ser 175		528
20	ser	gca Ala	gte Väl	agg Arg 180	acs Thr	gts Væl	agt Alg	gtg Val	otg Leu 185	oga Arg	pod Exo	cto Leu	Wrd Wdd	gcc Ala 190	att	aac Asc	\$76
23	sqq Arg	grg Val	000 Pro 195	ser	atg Met	cgs Arg	att	crc Les 200	Awj arc	aca Thr	tta Leu	stg Leu	500 per cra	gac Asp	acc	t tog Lead	624
30															ttc Phe	atc	872
33°	ttt Phe 235	ggc Gly	atc lie	gtg Val	ely ggc	gto Val 230	cag Gln	ctg Leu	rgg Trp	gça Ala	gga Gly 235	ctq Leu	ctt Les	ogc Arg	aac Aso	cgg Arg 240	720
Agran.	tgc Cys	tts Pne	oto Leu	goe Pro	gaq Glu 245	aac Asn	ttc Phe	agt Ser	ctc Leu	ccc Pro 250	erg Leu	agc Ser	gtg Val	gac Asp	ctg Leu 255	gag Glu	768
40	eer Pro	tat Tyr	tac Tyr	cag 61n 260	aca Thr	Giu Gag	aat Asn	gag Giu	gac Asp 265	gag Glu	agc Sex	gro	tta Fne	atc 11e 270	bgc Cys	ret Ser	816
45	cag Gln	cot Pro	cgg Arg 275	gag Glu	aat Aso	gga	atg Met	aga Arg 280	boc Ser	tge Cys	agg Arg	agt Ser	gtg Val 285	ecc	aca Thr	otg Leu	864
30	Arg	590 614 833	Glu	ggc Gly	ggt Gly	ggt Gly	990 Gly 295	cca Pro	Pro	tgc Cys	agr Ser	atg Leu 300	çac Asp	tet Tyr	gag Slu	acc Thr	313
ĬĬ		Asn													tec Tyr		960
***															ato Ile 335	aac Asn	1008
60	rtt Pha														ato Tle		1056
	cca	gag	ggc	tgg	gtc	gac	atic	atç	rac	tti	ars	arg	ඉෂය	gut	cac	tee	1104

	Leu	Slu:	Gly 388	Tep	Val	Asp		Иес 360	£32.	Phe	Val	Mer	Asp 383	8.18	818	Ser	
S.	bsc Yh*	tac Tyr 370	aat Asn	tto Phe	atc Ile	tac Tyr	tto Phe 375	att	utt Leu	ctc Leu	atc lle	atc Tis 380	A#T drd	373. 32c	toc	tti Phe	1157
10	irc She 385	atg Met	ato Ile	aac Aso	ctq Leu	tąc Cys 390	ctg Leu	giq Val	gtg Val	att Tie	gcc Ala 395	acg Thr	caq Gin	tto Phæ	toc Ser	gag Clu 400	1200
ાં લ	act Thr	aaa Lys	Caş Gin	cgg Arg	989 Glo 405	agt Ser	cag Gin	Led	atq Met	ogg Arg 410	giu gag	Cag Gin	tgo Arg	gts Val	oga Arg 415	tto Bhe	1248
18	ctg Leu	toc Ser	aat Asn	gct Ala 420	agc Ser	acc Thr	otg Leu	gca Ala	agc Sec 425	tro She	tot Ser	gag Glu	ods Pro	990 Gly 430	agc Ser	tgc Cys	1296
20	tat Tyr	Glu gag	989 510 435	cta Leu	oto Leu	aaq Lys	tac Tyr	otq Led 440	ytq Val	tac Tyr	ato (ile	sto Leu	oga Arg 445	sas Lys	ges Ala	gcc Ala	1344
25	cga Arg	agg Arg 450	ctq Len	goo Ala	caq Glo	gta Val	tot Ser 455	Arg	yct Sia	ata Ile	gly ggc	gtg Val 460	cgg Arg	gat Ais	ggg Gly	atg Leu	1392
30	ctc Leu 485	agc Ser	agc Ser	cca Pro	gtg Val	gcc Ala 470	cgt Arg	agt Ser	eja aaa	cag Gln	gag Glu 475	ece Pro	cag Gin	era Pra	agt Ser	ggc Gly 480	1440
33	agc Ser	tge Cys	act Thr	ogc Arg	tos Ser 485	cac His	cgt Arg	egt Arg	otg Led	tct 801 490	gts Val	car Ris	cac His	atg Lea	gtc Val 495	cac His	1488
ing ing									tac Tyr 505								1536
40	aga Arg	gtt Val	000 Pro 515	ogg Arg	gcc Ala	ago Ser	oca Pro	gaq Glu 520	atc Ile	cag Gln	gac Asp	agg	gat Asp 525	gcc Als	aat Aso	ggg Gly	1584
45									cac Pra							61Å ååå	1632
50	990 Gly 545	520	ccq Pro	agg Arg	ggt Gly	gcg Ala 550	gaq Glo	tet Ser	gta Val	cac His	agc Ser 555	ttc Phe	tec Tyr	cat His	got Ala	gac Asp 560	1630
55	tgc Cys	cac Nis	ttg Leu	gag Glu	00a Pro 565	gtc Val	ogt Arg	tąc Cys	tag Gln	gca Ala 570	820	cot Pro	820 000	aga Arg	tga Cys \$78	Sco	1,728
ing and	tog Ser	gaş Glu	gca Ala	tot Sec 580	ggt Gly	agg Arg	act The	gtg Val	ggt Gly 585	agt Ser	9 99 61y	839 Lys	gtg Val	tac Tyr 890	820	act Thr	1776
60	gtg Val	cat Bls	acc Thr 595	Ser	aat Pro	eca Pro	cca Pro	gag Glu 600	aca Ile	ctq	aaq Lys	gat Asp	aaa Lys 605	gca Ala	ota Lau	gtg Val	1824
	gag	gtg	god	coc	ago	cet	ggg	200	en en en Se ser se	800	ctc	ತ್ತಿದ್ದರ	890	- žeo	аас	ato	1977

	Glu	Val 610	Als	₿්උන.	Sec	823	Siy	820	820	The	Leu	Th: 620	Sex	\$68	Aso	Ile	
\$.\$	008 810 828	00% 800	età aaa	ecs Fro	gne gee	agc Ser 630	tro tes	etg Neć	cac Sis	eaq Lys	ctc Leu 635	etg Leu	gag	aca Thr	cag Gin	agt Sex 640	1920
10	acq Thr	gga Gly	gec Ala	tac Cys	cat His 645	ago Ser	too. Ser	tac Cys	aaa Lys	ato lis 650	too Ser	agc Ser	920 200	Cy:	toc Ser 855	sag Lys	1969
13	qta Ala	gac Asp	agt Ser	gga Gly 660	gcc Ala	cys	giy ggg	5xo eca	985 830 665	agr Ser	gya ggt	820 820	Typ tac	tgt Cys 670	gcc Ala	cgg Arg	2016
**************************************	aca Thr	gga Gly	gca Ala 675	gga Gly	gag Glu	cca Pro	gag Glu	500 Ser 680	gct Ala	gas Asp	sat His	grø Val	atq Met 685	oct Pro	gac Asp	ros Ser	2084
20	gac Asp	agc Ser 690	gag Slu	got Ala	gtg Val	tat Tyr	gag Glu 695	usa Phe	aca Thr	cag Gin	gac Asp	gut Ala 700	Çaq Çaq	cac Sis	agr Ser	gac Asp	2112
25	ctc Leu 705	cgg Atg	yat Asp	ecc Pro	cec His	agc Sar 710	arg egg	yzű cáá	aga Arg	cag Gln	ogg Asg 715	agc Ser	ren	GI Y ggc	rca Pro	gat Asp 720	¥150
30					tot Ser 725												2208
33					gta Val											sto Lie	2288
*********	gcc Ala	atc Ile	00g Leu 755	Val	aat Asn	aca Thi	oto Leu	agc Ser 760	atg Met	gga Gly	ato Ile	gag Glu	tac Tyr 765	Cac His	gag Glu	Cag Gin	2308
40					acc Th:												2352
43	agc Ser 785	atc Leu	tto Fhe	gcc Ala	ttg Leu	gaq Glu 790	atq Met	crg Leo	atg Leu	asa Lys	ctq Leu 795	ctt Leu	gtt Val	tec Tyr	ggt Gly	ccc Pro 800	2400
50	ttt	G1y ggc	tac Tys	att	aag Lys 805	sat Asn	oec Pro	tac Tyr	aac Asn	ato Ile 810	ttt Phe	gat Asp	gar Gly	gtc Val	att 11e 915	gtg Val	2448
<i>33</i>	qtc Val	atc Ile	agt	grq Val 820	tgg Trp	gag Glu	att	gtg Val	ggc Gly 825	caq Gln	cag Gln	91y gga	ggt 91y	990 830	otg Leu	tcç Ser	2495
ंक्ष्रेज़ी क	gtg Val	.દેલપ	ogg Arg 835	Thr	sst ed8	egc	otg	arq Met 840	cgg Azg	gtg Val	ctg Leu	aaq Lys	ctg Leu 845	gtg Val	tgc Arg	tto Phe	2544
60	otg Leu	209 910 850	ELR	Ctg Leu	cag Gin	yrg	caç Gln 855	Leu	grg Val	gtg Val	ctc	atq Met 860	aaq Lys	acc The	atq Met	gar Asp	2592
	880	gtg	ģas	800	tto	tgo	ang	ರಬಜ	ete	atg	ccg	rrc	atc	tra	atc	. etc	2640

PCT/US98/23161 WO 99/29847

	Asm 1	/alti-	A La	Thr	Phe	Cys 970	Mes	Leo	Leo	Met	1.90 875	Fhe	ILE	Phe	Il»	Phe 980	
S.		eta Ile	otg Lea	Gly-	.d. 690		ogt Leg	tti Pha	ggt Gly	tqc Cys 890	en 3 m	etc Phe	gca Als	tet Ser	gae 61:2 995	egg Arg	2638
10	gas Asp	999 617	gac Asp	acg Thr 900	trg Leu	cca Fro	gac Asp	ogg Arg	aaq Lys 905	aat Asn	tro Phe	gar Asp	tod Ser	ctq Leu 910	arc Leu	Trp Cqq	2736
E Car	gas Ala	att Ile	gtc. Val 915	Thr	gtc Val	ttt Phe	cag Gln	est ile 920	10 50 50	act The	cag Glo	gaa Glu	gac Asp 925	tgq Txp	ast Asn	Lys	2794
13	gez gez	oto Leu 930	tac Tyr	aac Asn	ggc	atg Met	qcc Ala 935	tee reg	ace Thr	tog Ser	tot Ser	099 Trp 940		gat Als	ctt Leu	tac Tyr	2833
20	tto Phe 945	atc Ile	gcc Ala	oto Leu	atg Met	act The 950	\$0.0%	ggc Sly	aac Asc	tat Tyr	gtq Val	1966.000.00	ttt Phe	aec Asn	ctg Leu	stq 1≈0 960	2880
25	gtg Val	gcc Ala	att Ile	stt Leu	gtg Val 965	127.1.32	ggā Gly	t.t.c She	్ భశిశ క	908 Ale 97(a real areas	: 913	gat Asp	qcc Ala	acc Thr 975	***	2928
30	tar Ser	gag Slo	toa Ser	9a9 Gl9 980	- Pro	gat Asp	ttc Phe	tt: Ph:	: to: : Se: 98:		2 ag: 3 Se:	c gro vai	gat Asp	990 990	1,101,000	era aaa	2976
	gac Asp	aga Arg	aaç Lys 993	: Lys	ogc Arc	ttq Lev	6.40	ct: (Le:	ಭಾರಾವ್ಯ	y gc I Al	r tt: a læ:	9 99: 0 Gl:	s ga: / Gi: 100:		gcç Ala	gad Glu	3024
35	cta Leu	cgs Arq 1010	Lys	; ag: ; 3e:	t ott CLen	t tt: Lei) 004 1 Pr: 1013	ಾ ನೀತು	g st o Le	e at u Il	c st * Il	c ca) e Hi 102		g go: r Ala	ac Als	aca Thr	3072
40	oce Pro 102	Met	ş te Se	a çav r Hi:	: 00 : 7::) ae 0 Ly: 103	3 25 65	o to t \$8	c sq r Se	a ac r Th	a gg r G1 103	A	1 GI 9 99	g ga y Gl:	ı gu ı Al	a ctq a Leu 1040	3120
45			c 61 c dd	c to y Se	t cg r Ar 104	લું ભારા	t ac g Th	c ag r 5*	t aq r Ss	c aq r Se 105		g to y Se	c gc r Al	t ga a Gl	g cc G Pr 105	t gga o Gly S	3169
<i>30</i>	gc' Al	i qa s Al	c ca a Ai	c ca s Hi 106	ទ ទរ	g at u Me	g aa t Ly	a tç s Cy	(t) 00 /s Pi 101	, Q., 909	:a aç :o Sé	r gc r Al	c co a Ar	c ag g Se 107	e te r Se O	e ceg r Fro	3218
	ca Hi	c aq s Se	t cc r Pt 107	o Tr	g ag p Se	it ge ir Al	g go a Al	a aç a Sa 108	27. (3)	ja to er Ti	tà 1; jd ec	rc aç	js aç 101 101	- 30	a to g Sa	c agc r Ser	3258
33		g as g As	c ac		n Gl	(C 85	ig go g Al 109	. Ç	cola ro S	go c er L	ta a: eu l/	ag co ya A: 11:	. 23 m 5 m	id ge id ec	ic co r Fi	o Ser	3312
60	99 61 11	g gs y G1		gg ac cg Ai	19 T:	0 0' 20 0' 11	8 (3 75)	ig t su S	ct q er G	ga g ly G	ag g Lu G 11	A 3	ag g ln G	ag a: lu S:	er G	ig gat in Asp lizc	
			sg 9	88 B	gr t			\$9 . Q	ac c	4 9 9	cc s	de t	ca g	ca g	gc a	gt gad	3408

	Gio Gio Gio Ser Ser Gio Gio Asp Arg Ale Ser Pro Ria Giy Ser Asp 1125 1130 1135	
	cat ogo cas agg ggt too tog gas ogt gas guv sag sgt too tit gas His Arg His Arg Gly Ser Leu Glu Arg Glu Ala Lys Ser Ser Phs Asp 1140 1145 1180	3458
10	cry cot gat act cty cap gro cry ggo cty cac ego atá get ago ggo Leu Pro Asp Thr Leu Gln Val Pro Gly Leu His Ary Thr Ala Ser Gly 1155 1160	3564
	cgg ago tot god tot gag dad das gad tot ast ggd sag tog got tos Arg Ser Ser Ala Ser Glu His Gin Asp Cys Ash Giy Lys Ser Ala Ser 1170 1175 1180	3852
15	ggg cgt try gcc cgc acc ctg agg act gal ggc ccc caa ctg gat 999 Gly Arg Leu Ala Arg Thr Leu Arg Thr Asp Asp Pro Glm Leu Asp Gly 1185 1190 1198	3600
20	get gat gan aar get geg gge aat otg agn aaa ggg gas ngn ata cas Asp Asp Asp Asn Asp Glu Gly Asn Leu Ser Lys Gly Glu Arg Ile Gln 1205 1210 1215	3549
23	ges tag att aga tes sag stt set acc tat tag ogs gag tag gat tos Ala Tro Val Ara Ser Ara Lau Pro Ala Cys Cys Ara Glu Ara Asp Ser 1220 1225 1230	3696
30	tgg tog god tat ato tot oot oag toa agg tot ogt oto otg tgt Top Ser Ala Tyr Ile Pha Pro Pro Glo Ser Arg Pha Arg Leu Leu Cys 1235 1240 1245	3744
3 5	can ago are ato ach can aag atq tit gas oat gig gio oto gio atc sis Arg The The Thr His Lys Met Phe Asp His Val Val Leu Val The 1250 1255 1260	3792
	ato tto oto aso tob ato aco ato got atg gag ogo coo asa att gad lie Phe Leu Aso Cys lie Thr lie Ala Met Glu Arg Pro Lys lie Asp 1265 1270 1275 1280	3840
40	con cac age get gag oge ate the org acc ore too ase tac ate the Pro His Ser Ala Glu Arg Ila Pha Leu Thr Leu Ser Ase Tyr Ila Pha 1285 1290 1295	3888
45	acq gca gtc ttt cta gct gas atg aca gtg sag gtg gtg gca ctg ygs Thr Ala Val Phe Leu Ala Glu Met Thr Val Lys Val Val Ala Leu Gly 1300 1305 1310	3936
50	tgg tgc ttt ggg gag cag gcc tac otg ogc agc agc tgg aat gtg ctg Trp Cys Phe Gly Glo Glo Ala Tyr Leu Arg Ser Ser Trp Aso Val Leu 1315 1320 1325	3984
33	gac ggc ttg ctg gtg ctc atc tcc gtc atc gac atc ctg gtc tcc atg Asp Gly Leu Leu Val Leu Ile Ser Val Ile Asp Ile Leu Val Ser Met 1330 1335 1340	4032
and set of the second	gto too gas ago ggo aco aag ato ott ggo atg otg agg gtg otg ogg Val Sar Asp Ser Gly Thr Lys Ile Leu Gly Me: Leu Azg Val Leu Azg 1345 1350 1360	4080
60	ctg ctg cgg ace ctg ogt ccs ctc agg gtc atc agc cgg gcc cag ggs Leu Leu Arg Thr Leu Arg Pro Leu Arg Val Ile Ser Arg Ala Gln Gly 1368 1370 1375	4128
	ctg aag ctg gtg gta gag act ctg atg toa too cto aas cco att ggo	\$176

		Vel Vel Git The	Let Met Sec 1388		ero lim Gly 196
	asc att gog Asn Ile Vel 1395	ote act tgc tgt Val lle Cys Cys	ger tic tic Alm Pb# Ph# (400)	ato att tit : Tie lie Phe : 1405	gga att ctc 3224 Sly Ile beu
10	ggg gcg cag Gly Val Sin 1410	ctc ttc awa ggg Leu Pha Lys Gly 1415	wag the tec Lys Pha Pha	gtg tgt cag (Val Cys Gln (1420	ggi gag gac 4272 Ny Glo Asp
15		ato act ear eee lie Thr Asn Lys 1430	Ser Asp Cys		
	tgg gtc cgg Top Val Azg	cac sag tac aac His Lys Tyr Asn 1445	ttt gac aac Phe Asp Ain 1450	ctg ggc ceg : Leu Cly Gin !	pet ong ang 4369 Na Leu Men 1455
20	Ser Leu Phe	gig sig gas too Val Lea Ala Sés 460	aag gat ygt Lys Asp Gly 1465	Trp Val Asp	stc atg tat 4416 Ner Tyr 170
25	gat ggg ctg Asp Gly Leu 1475	dat det ded dat	gtg gat cag Val Asp Gln 1480	cag occ atc (Gin Pro Ila (1485	aty aan cao 4464 fet Ash His
30	aac ccc tgg Asn Pro Trp 1490	atg otg dta tac Mat Leu Leu Tyr 1495	tto ato too Phe Ilm Ser	tto oto oto : Phe Leu Leu : 1500	ato gtg goo 4512 Lie Vai Ala
35	tto tot gto Phe Phe Val 1503	ctg asc atg ttt Leo Asn Met Phe 1510	Val Cly Val	gtg gtg gag (Val Val Glu (515	sac tic cat 4560 lan Phe Ris 1520
	eag tạc aça Lys Cys Arg	cag cac cag gag Sin His Sin Glu 1525	gaq gaq gag Glu Glu Glu 1530	gog agg ogg : Ala Arg Arg :	ogt gag gag 4608 Arg Glu Glu 1535
40	Lys Arg Leu	ogg agg olg gag Arg Arg Leu Glu (540	waa aag aga Lys Lys Arg 1545	Arg Lys Ala	cag tọc aag 4656 31n Cys Lys 550
43	con ted tac Fro Tyr Tyr 1353	Ser Asp Tyr Ser	aga tto ogg Arg Phe Arg 1560	oto ott gto: Leu Leu Val: 1565	can car org 4764 His His Leu
50		cac tac org gac His Tyr Lau Asp 1575	Leu Phe Ile		
35	aac gtg gre Asn Val Val 1585	act sty god sty Thr Met Ala Met 1590	Glu His Tyr	cag cag ccc Gln Gln Pro: 598	rag ato ctg 4800 Sin Ile beu 1600
Mark and	qac qaq qct Asp Glu Ala	ctg aag ato tgo Leo Lys Ile Cys 1605	eat tac atc Asn Tyr Ile 1610	tit acc gic Phe Thr Val	ato but quo 4840 Ile Pha Val 1615
60	Phs Glu Ser	gtt ttc aaa ctt Val Phe Lys Led 1620		Gly Phe Arg	
	cag gan agg	tgg asc cag ct;	dac ord der	err gra crr	cry too are 494%

	Gla Asp Arg 1835	Trp Asa Glo	Led Asp 1 1640	led Ala Ila	Val Leu Leu 1643	Ser ile	
::5	atg ggc atc Mat Sly lis 1800	aca ctg gag Thr Leu Glu	gaş etc : Giv Tie (1655	Jiu Val Asr	ctq tcg ctq Led Ser Led 660		992
10	eet ood acc Ash Pro Thr 1665	atc atc cyt lie lle Arg 1870	ato ato s Ile Mes ?	aga gtg cts Neg Val Leu 1673	oge act got Arg lim Ala		040
3.2	otg aag otg Leu Lys Leu	ttg aag atg Leu Lys Met 1685	got ota : Als Val S	isc atg cgg Net Arg 1690	Ala Leu Leu		088
13	Val Met Gin	gcd atg dec Ale Leu Fro (700	Cin Val 6	jgg aac ctg Ny Asr Leu 708	gga cit cic Cly Leu Leu 1710	ttc aty 5	136
20	tis the tht Leu Leu Phe 1715	tto ato the Phe Ile Pho	gca gct c Ala Ala I 1720	rtg ggc gtg Leu Sly Val	gag ctc tbt Glo Leo Phe 1723	gga gac 5 Gly Asp	184
25	cto gag tgt Leu Glu Cys 1730	Asp Glu Thr	cac pot : 813 Pro (1735	Tys Glu Gly	ttg ggt cgg Leu Gly Arg 1740	cat que & Bis Ala	232
30	acc ttt agg The Phe Arg 1743	aac ttt ggt Asn Phe Sly 1750	Met Ala S	itt otg acc Phe Leu Thi 1753	cto tto ega Leu Phe Arg	gcc tcc 5 Val Ser 1760	280
35	act ggs gac Thr Sly Asp	aac top aat Asn Trp Asn 1765	ggt att a Gly Ile A	atg aag gac Mat Lys Asp 1770	Thr Lea Arg		328
	Asp Gin Glu	toc acc tgc Ser Thr Cys 1790	Tyr Aso 7	act gtc atc Thr Val lie 785	tec oct atc Ser Pro 11e 1790		376
40	gig tot ttd Val Ser Phe 1795	Val Leo Thr	gcc cag t Ala Gin A 1800	ttt gig eig Phe Val Leu	gto aso gtg Val Aso Val 1805	gtc ata 5 Val Ile	424
45	got gro otg Ala Vai Leo 1810	atg aag cac Met Lys Sis	oto gaa c Leu Glu (1815	Glu Ser Asn	aaa gag goo Lys Glu Ala (820		472
30	gag goo qag Giu Ala Glu 1925	oto gag goo Leu Glu Ala 1830	gag cto (Glu Leu (gag ctg gag Slu Leu Glu 1835	atg aag acg Met Lys Thr		520
35	ocq cag ccc Pro Gin Pro	cac too cog His Ser Pro 1845	etg goc : Leu Gly :	ago occ ttc Ser Pro Phe 1850	Leu Trp Pro	ggg gtg 5 Gly Val 1855	568
: ead	Glu Gly Val	aac agt act Asn Ser Thr 1860	Asp Sar (818
60	ast god cac Thr Ala His 1875	att gga gca Ils Gly Ala	qcc tcq : Ala Ser : 1880	ggs ttc tcc 31y Phe Ses	ctt gag cac Leu Glu His 1885		664
	erd dre coc	cac ccc gag	gas ors	oda gra cog	ota gga coa	gas ong S	732

	Met Val Pro Ela Pro Glu Glu Val Pro Val Pro Leu Gly Pro Asp Leu 1390 1895 1900	
.3	cty ser org agg asy ter ggt gto sec egg acg dec tot etg coc sat 5 Leu Thr Val Ary Lys Ser Gly Val Ser Arg Thr Ais Ser Leu Pro Ash 1905 - 1910 - 1915 - 1928	360
10	gar ago nac and ngo ogn aan ggg ago ach gnn gag ago nco cha gga S Asp Ser Tyr Met Cys Ard Ash Gly Ser Thr Ala Giu Arg Ser Leu Gly 1925 1930 1935	808
* * **	cat agg que tog ggg oto oco aea goo can toa ggo con ato tig ton (5 His Arn Gly Trp Gly Leu Pro Lys Ala Glo Ser Gly Ser lle Leu Ser 1940 1945 1950	8856
13	gtt cac tee caa coa gea gac ace age tgc arr era cag cet cec asa S Vai his Sar Gln Pro Ala Asp Thr Sar Cys Ila Lau Gln Lau Pro Lys 1988 1960	190¢
20	gar gtg cac tat otg cir cag cot cat ggg gct cot acc tgg ggc gcc & Aap Vai His Tyr Leu Leu Gln Pro His Gly Ala Pro Thr Trp Gly Ala 1970 1975 1980	952
25	ato por eas one con the cot got ogn for out of got day agg tot. It file Pro Lys Leu Pro Pro Pro Gly Arg Ser Pro Leu Ala Gin Arg Pro 1985 1990 1995	000
30	cto egg cgc cag gca gce eta agg act gat tcc ctg gat gtg cag ggc f Leu Arg Arg Gin Ala Ala Ile Arg Thr Asp Ser Leu Asp Val Gin Gly 2005 2016 2018	048
	stg ggt age egg gaa gae etg ttg toa gag gtg agt ggg eee toe tge (Leu Gly Ser Arg Glu Asp Leu Eeu Ser Glu Val Ser Gly Pro Ser Cys 2020 2025 2039	5096
33	cet etg ace egg too toa tee tte tgg gge ggg teg age ate eag gtg Pro Leu Thr Arg Ser Ser Ser Phe Trp Gly Gly Ser Ser Ile Gin Val 2035 2040 2045	\$144
40	cag cag cgt too ago are cag ago was gto too wag cao are cgc ciq Gin Gin Arg Ser Gly Ile Gin Ser Lys Val Ser Lys His Ile Arg Leu 2050 2055 2060	33.92
43	cca god out tgo oca ggo etg gas oco ago tgg god aag gad oot oca (Pro Ala Pro Cys Pro Gly Leo Glo Pro Ser Tro Ala Lys Asp Pro Pro 2065 2070 2075 2080	5240
50	gag acc aga agc agc tta gag ctg gac acg gag ctg agc tgg att toa (Glu Thr Arg Ser Ser Leu Glu Leu Aap Thr Glu Leo Ser Trp Ile Ser 2005 2000	5288
න්න	Gấy Ásp Leu Leu Pro Sêr Sêr Gin Giu Điu Pro Leu Phe Pro Arg Ásp 2100 - 2100	3336
:33 0		5384
60	ggg tto tgg ora gat gas caq ogg aga cao too att got gto ago tgt Gly Phe Trp Leu Asp Glu Gln Arg Arg His Ser Ile Ala Val Ser Cya 2130 2135 2140	6432
	cty gar ago ggo too caa ooo dyo ota tyo ooa ago boo toa ago oto	5460

	Lat Asp Ser 2145	GIV Ser	Gin 9 2150	ro Arg	leu (lys 2155 2155	Ser	923	Sec	Ser Z	Leu 150	
ž	ggg ggc cas Sly Sly Sla	oot ett Pro Leu 2165	999 9 Sly 3	gt cot Ly Pro	378	ago ogg Ser Atg 170	pro	aaş Lys	\$ Y 35	aza Lys 175	oto Leu	6528
10	ago poe pro Ser Pro Pro	agn arc Ser lie	tor a Ser I	le Asp	ese : Pro 185	nng gag Pro Glo	egc Ser	Oin-	993 195	tot Ser	Arg cgg	6576
13	odo oda bgo Pro Pro Cys 2195						Arg					6624
ent,	gac tot aag Aap Ser Lys 2210	get out Asp Pro	Sex V	ito toc 'el Ser 'IS	agc Ser	Pro Leo	qac Asp 2220	agc Ser	acg Thr	got Ala	goć Ala	6672
20	toa oco too Ser Pro Ser 2225	Pro Lys	asa g Lys A 2230	iac acg isp Thr	reu	agt ctc Ser Leu 2235	និខន	ggt Gly	ren eed	Ser	bot Ser 240	6720
25	gac oca aca Asp Pro Thr											6741
30	<210> 9 <211> 6132 <212> DNA											
	<213× Homo :	sapiens										
33												
35 40	<213> Homo : <220> <221> CDS	(6132) ggc qca	Arg &	goo goo Na Ala	gác Asp	gag gto Giu Va) 10	arq cgg	ğtğ Şta	ece.	ctg Lec 15	erk aaa	*** *
	<213> Homo : <220> <221> CDS <222> (1) <400> 8 atg acc gag Met Thr Glu	(6132) ggc gca Gly Ala 5 tee ccs	Arg &	Nia Ala Mga qti	Asp	Gin Val 10 ggg ggs	Arq gtc	val	gga	leo 15 geg	ccc	
40	<213> Homo : <220> <221> CDS <222> (1) <400> 9	(6132) ggc gca Gly Ala 5 tgg ccc Trp Pro 20	Arg J tgc (Cys (jac aas jac ast jac ast	ada ada Se Cilh Car	Glu Val 10 999 gg: Gly Gl; ggg tt:	Arq gtc Yal	val occ Pro	gga Gly 30	Leo 15 gag Glu gtg	Gly ccc Pro	
40	<213> Homo : <220> <221> CDS <222> (1) <400> b atg acc gag Met Thr Glu i cgc cgc ccc Arg Arg Pro cgg ggc gcc Arg Gly Ala	(6132) ggc gca Gly Ala 5 tgg ccc Trp Fro 20 ggg acg Gly Thr	Arq &	lla Ala ggo get ggo gga ggo gga lly Gly d0 gco gag	cac cat cat cat cat	Giu Val 10 999 990 Siy Giy 989 570 51y Phe	dad dad dac drc	val coc Fro ctc ks	gga Gly ggc Gly	Leo 15 gag Glu gtg Val	da:	
40	<213> Homo : <220> <221> CDS <222> (1) <400> b atg acc gag Met Thr Glu i cgc cgc ccc Arg Arg Pro cgg ggc gcc Arg Gly Ala 35 ccc tcc gag Pro Ser Glu	ggo goa Gly Ala tgg ccc Trp Pro 20 ggg acg Gly Thr age ccg Ser Pro	tgc (Cys Cys Cys Cys Cys Cys Cys Cys Cys Cys	Na Ala Jgo ger Jgo gga Jgo gga Jgo gag Na Glu Så tac cog	doc cac cac daa caa caa caa caa caa caa ca	Giu Val 10 200 ggs Gly Gly ggg tts Gly Phe tgc gcs Cys Als	dec dec ded ded ded dec dec dec	val coc Pro ctc Leu k5 ctq Leu	atc gas gas gas gas gas	Leo 15 gag Glu gtg Val gcc Ala	ccc Pro tca Ser gan Asp	36
40 45 30	<213> Homo : <220> <221> CDS <222> (1) <400> b atg acc gag Met Thr Glu i cgc cgc ccc Arg Arg Pro cgg ggc gcc Arg Gly Ala 35 ccc tcc gag Pro Ser Glu S0 gag gag cag Glu Glu Cln	G132) GGC GCA Gly Ala tgg CCC Trp Pro 20 GGG ACG GLY Thr agc CCG Ser Pro CGC GtC Arg Val	tgc (Cys (Cys (Cys (Cys (Cys (Cys (Cys (Cys	Na Ala Jgc gtt Jgc gga Jgc gga Jgc gag Jgc	Asp GGC GGC GGC Arg GGC Arg GGC Arg	Giu Val 10 999 990 Sly Gly 999 tto Gly Phe tgc 900 Cys Alo tts 900 Leu Alo 890 tgc	Arq gac gac gac Glo gac solu solu arac arac solu solu solu solu solu solu solu solu	val ccc Pro ctc Leu 45 ctg Leu acg Thr	cate Awr	Leo 13 gag Glu gtg yal gcc Ala ttc Phe	Gly ccc Pro tca Ser gan Asp ttc Pha 80	36

				100					105					110			
3	Cys Cys	gtg Val	acc Thr 115	crg Leu	gly	atg Met	tto Phe	299 Arg 120	Sxo acc	tgt Cys	gag Glu	gat Asp	git Val 125	989 51u	tgc Cys	ggc Gly	388
:::: >. &.::	Ser Ser	gag 510 130	aga Arg	ogc Cys	aac Asn	Ile	otg Leu 135	gag Glu	gcc Als	ttr Phe	gac Asp	ges Alæ 140	tio Phe	att Lie	tto	goc Ala	432
70	titt The	ttt Phe	gcq Als	gig Val	gaq Glu	atq Met 150	Val	etc Ile	aag Lys	atq Met	gtg Val 155	Ala	trg Let	ggg Gly	ctq Leu	ttc Phe 160	480
13	21À 333	cag Gln	aaq Lys	tgt Cys	tac Tyr 165	otg Lea	ggt	gad Asp	acg Thr	tgg Trp 170	aac Asp	agg Arg	ctg Lea	gat Asp	ttc Phe 175	ttc Phe	528
20	22s 91T	gto Val	gtg Val	geg Ala 180	erà aac	atg Met	atg Met	gag	tac Tyr 185	tog Ser	ttş Leu	gac Asp	gga Gly	cac Mis 190	asc Asn	gtg Væl	578
23	agc Ser	teu	toq Ser 193	get Ala	atc Ile	agg	acc Thr	9t3 9al 200	yiâ cââ	gtg Val	ctg Leu	cgg Arg	000 820 205	oto Leu	ogo Arg	goc Ala	624
30	atc Ile	aac Asn 210	ogc Arg	gtg Val	cot Pro	agc Ser	atq Met 215	ogg Arg	ato Ile	ctg Leu	gtc Val	220 Thr act	org Lea	ctq Lea	ctg Ctg	gat Asp	632
30	acg Thr 225	$L\otimes \mathcal{U}$	ccc Pro	atg Met	ote Leu	999 Gly 230	aac Asn	gtc Val	ctt Leu	reu Leu	ctg %eu 235	tgo Cys	trc Phe	ttc Phe	gtc Vsl	tto Phe 240	720
33	tta Phe	att Ile	ttc Phe	agc Gly	atc [le 245	gtt Val	ggs Gly	gto Val	cag Gin	cto Lau 250	Tip	gct Ala	el A dac	cto Leu	cto Leu 255	Arg Ogg	768
40	aac Asn	Arg	tgc Cys	ttc Phe 260	ctg Leu	gac Asp	agt Ser	gcc Als	ttt Phe 265	. Ast	ægg Arg	aac Asn	asc Asn	asc Asn 270	ctg Leu	acc Thr	816
45	tto The	ctg Leu	cgg Arg 275	Pro	tac Tyr	tac Tyr	cag Glo	acg Thr 280	Glu	Glu	ggc Gly	gag Glu	gag Glu 285	aac Asn	bro ccâ	ttc Phe	864
30	atc Ile	tgc Cys 290	Ser	tta Ser	zgc Arg	cga	gac Asp 295	aac Asn	ggo Gly	atq Met	cag Gin	aag Lys	Çys	tog Ser	His	atc Ile	912
: 2 88	ccc Pro 305	SIY	'aga Azg	ogc Arg	gac Asp	gtg Val 310	Arg	atg Mat	ccc Pro	tqc Cys	acc Thr 313	1.હ્યા	GTÀ dàc	tgg Trp	gag Glu	gcc Ala 320	960
<i>55</i>	tac Tyr	acq Thr	caq Gln	oog 8co	cag Gin 325	gcc Ala	gag Glu	er A aaa	gtg Val	ggc Gly 330	Ala	gca Ala	ogo Arg	aad Asn	900 81a 335	tgc Cys	1008
60					Gln					Cys						aac Aso	1056
	ccc Pro	cac Bis	aac Asn	ggt Gly	gcc Ala	atc	aac Asn	tto Phe	gac Asp	aec Asn	act The	ngo Cys	tec Tyr	goc Ala	tgg Trp	stt Ila	1104

			388					360					358				
3.	gcc e Ala I	rt.c 11e 170	tta Bhe	rag Oln	gtg Väl	etc Tie	acq Th: 375	isu Leu	gaa Glu	etă âăc	tgg Trp	gtg Væl 380	gaç Rap	atz Ils	at; Net	tso Tyr	1152
10	tac t Tyr \ 385																1200
. (* €5*)	ctc : Leu 1	sto [i*	atc Ile	gig Val	ggc Gly 405	Ser	ttc Phe	ttc Phe	atg Mat	aco lle 410	asc Asn	org Læu	tgc Cys	ztq Leu	412 241 343	gta Val	1248
:15	att : Tla /	ija ido	acq Thr	cag Gln 420	tto Pne	tog	gaq Glu	acg Thr	aag Lys 425	caq Gln	ogg Arg	gag Glu	agt Ser	cag 915 430	ota Lea	atq Met	1298
20	ogg (Arg (gag Slu	cag Sln 435	cgg Arg	goa Ala	ege Arg	cac His	ctg Lau 440	too Ser	aac Asn	gac Asp	agc Ser	&CG Thr 445	otg Leu	gcc Ala	ser	1344
25	ttp (Phe s																1392
30	080 : 815] 465	sta Lle	tto Phe	egc Arg	aag Lys	gte Val 470	aag Lys	ogg Arg	cgc Arg	ser ser	ttg Leu 475	oge Arg	oto Leu	tac Tyr	ges Alæ	zgc Arg 480	1440
	tyg (Trp (tag Jin	agz Sez	ege Arg	tgg Trp 485	age Arg	aaq Lys	aaq Lys	gtg Val	gac Asp 490	Pro	agt Ser	got Als	gtg Val	Caa Gin 495	G1y ggc	1488
35	cag (Gln (jgt Jgt	ore Pro	999 Gly 500	cac Ris	cgc Arg	cag Sin	ege Arg	cgg Arg 505	gca Ala	elA aac	agg Arg	cac His	aca Thr 510	god Ala	Ser	1536
40	gtg : Yæl																1584
45	cat :																3,632
50	tgo (Cys) 545																1680
: ***	Pro (ggc ggc	ogc Arg	GTA åås	ccc Pro 565	Pro CCC	gac Asp	gos Als	CIU	cct Ser 570	gtg Val	cac His	ago Ser	ate Ile	tac Tyr 575	cat His	3728
J	gcc : Ala :	gac Asp	tgc Cys	cac His 380	ata Ile	gag Glu	elà ààà	gro ccd	caq Gin 585	gag Glu	agg Arg	gcs Ala	ogg	gtg Val 590	Gly Ggc	ace Thr	1775
60	tgc Cys	Arg Cgc	ago Ser 595	cac Wis	tgc Cys	Arg	¢ys ¢ys	caç Gin 600	028 028	cag Gln	gct Ala	GIÀ ââc	023 818 605	agg Arg	got Ala	.ggg	1824
	cac His																1872

		610					\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$					- 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1					
3	agg Arg 625	caq Gin	cac His	caq Gln	000 910	093 Arg 830	soc Thr	088 615	ary aga	gaa Glu	gtg Val 635	Giy	Arq	tee Trp	acc Thr	gco Ala 640	1920
10	agg agg	cac Nis	Arg Ogg	giy Giy	cac Bis 645	ala	200 225	779 160	872 886	110 Leu 650	asc Asc	agc Ser	\$000 \$000	gat Asp	652 8x0 653	rac Tyr	1368
3.34	gag Gld	aag Lys	ato Ile	660 660	cat His	val gra	gcc Ala	ggg Sly	080 310 665	cat His	Gly Gly	atg Leu	ggc Gly	cas Gin 670	gcc	Bro azt	2018
15	Gly Ggc	cat His	ctg Leu 675	t cq Ser	ej aac	tet	agt Ser	959 Val 680	Pro	tys Cys	ccc 810	ctg Leu	000 Pro 685	agc Ser	820 000	eri Pro	2063
20												229 Pio 700					2112
25	gcc Ala 705	otg Leu	gag Glo	gac Asp	ecq	gag Glu 710	ggt Gly	gæg Glu	st. Lau	agc Ser	995 617 715	tog Ser	gaa Glu	agt Ser	gga	gac Asp 720	2160
30	tca Sex	gat Asp	ggc Gly	ogt Arg	990 Gly 725	gtc Val	tat Tyr	gas Glu	tro The	acq Thr 730	caq Gln	qac Asp	gtc Val	cgg Arg	cac Ris 735	gat Siy	2208
- 	gac Asp	cgc Arg	tgg Trp	gac Asp 740	ecc Pro	acg Thr	Arg	ers Pro	506 Pro 745	arg Arg	gog Ala	acg Thr	gac	aca Thr 750	cca Pro	G1y GGC	2256
35	cca Pro	ggc Gly	oca Pro 735	eyA dac	agc Ser	eca Pro	cag Gln	cgg Arg 760	cgg Arg	gca Ala	cag Gin	cag Cin	ægg Arg 765	gca Ala	gcc Ala	ccq Pro	2384
40	eTA aac	gaq Glu 770	820 820	gec Gly	tgg Tip	atg Met	ggc Gly 775	age Arg	ata Leu	tag Trp	gtt Val	acc Thr 780	tto Phe	agc Ser	ggc Gly	aag Lys	2352
45	ctg Leu 785	cgc Arg	cgc Arg	ato	gtg Väl	gac Asp 190	agc Ser	asg Lys	tac Tyr	tto Phe	ago Ser 795	cgt Arg	ejà âác	ato Ile	atg Met	atg Met 800	2400
50	gcc Ala	atz Ile	ctt Leu	gtc Val	aac Asn 803	acg Thi	ctq Leu	ago Ser	atg Møt	ggc Gly 810	gtg Val	gag Glu	tac Tyr	cat His	gaç Glu 915	cag Gln	2448
	cee Pro	gag Glu	gag Glu	ctg Leu 820	act	aat Aso	gat Als	beu Leu	989 Glu 825	atc Tle	ago Ser	asc Asn	arc	gtg Val 830	ttc Phe	acr Thi	2498
33												otg Leu					2544
60	Leu Leu	990 61y 850	tac Yyr	atc Ile	ogg Arg	aac Asn	ecq Pro 855	esc Tyr	aac Asn	ato	ttc	gac Asp 860	G17 dds	arc Ile	atc	gtg Vai	2592
	gtc Val	arc	agc Ser	gto Val	tgg Trp	gaç Glu	atc	gra Val	21A ada	cag Gin	gcg Ala	gac Asp	ggt Gly	913 930	rtg Leu	ror Ser	2640

		***	**************************************	880
.	gtg ctg ogo ado ttc Vai Leu Arg Thr Phe 885	ogg etg cts car gtg Arg beu beu Arg Vai 890	ong sag ong gig ogd Leu Lys Leu Val Arg 895	nn 2688 Phe
· \$.45	cty sca gss stg sgg heu Pro Ala Leu Arg 900	cgc pag eto gtg gtg Arg Gim Leu Vel Val 905	otg gtg seg ecc stg Leu Val Ly: Thr Met 910	gas 2736 Asp
10	aac gtg get acc itc Asc Val Ala Thr Phe 915	tgc acg ctg ctc atg Cys Thr Leu Leu Met 920	cts tto art tto atc Leu Phe Ile Phe Ile 925	tta 2784 She
<i>1</i> 5	age ate etg gge atg Ser lie Leu Gly Met 930	man oft the age tyc Ris Leu Phe Gly Cys 935	aag tto ago ctg aag Lys Phe Ser Leu Lys 940	aca 2832 Thr
20	gat are gga gac acc Asp Thr Gly Asp Thr 345	gtg cet gas agg sag Vai Pro Asp Arg Lys 950	eac the gas tee cho Asn Phe Asp Ser Leu 955	ctg 2880 Leu 960
25	tug gur ato qto acr Trp Ala Tie Val Thr 965	gtg ttc cag ats crg Vai Phe Gin Tie Lec 970	acc cag gag gac Egg Thr Sin Siu Asp Trp 975	aac 2920 Asn
200	gtg gic otg tac aac Val Val Leu Tyr Asn 980	gge atg gee ree acc Gly Met Ala Ser Thr 985	too too igg goo gem Ser Ser Trp Ala Ala 990	ctc 2976 Leu
30	tac tto gtg gcc ctc Tyr Phe Val Ala Leu 998	atg acc ttc ggc aac Met Thr Phe Gly Asn 1900	tat gtg ctc ttc aac Tyr Val Leu Phe Asn 1905	otg 3024 Leu
35	ctg gtg gcc atc ctc feu Vai Ala Ile Leu 1010	gtg gag ggc ttc cag Val Glu Gly Phe Gin 1015	doso dad dat dat dat dat dat dat dat dat dat	aac 3072 Asn
40	Arg Ser Asp Thr Asp	gag gac sag acg tog Giu Asp Lys The Ser 1030	Yal His Phe Glu Glu	gac 3120 Asp 1040
45	tto cao aag oto aga Phe His Lys Leu Arg 1045	gaa ctc cag acc aca Glu Leu Gln Thr Thr 1050	gag ctg aag atg tgt Glo Leo Lys Met Cys 1055	roc 3168 Ser
co	sig goo gtg acc tss Leu Ala Val Thr Pro 1060	aac ggc acc tog agg Aan Gly Thr Trp Arg 1063	gac gag gca gcc tgt Asp Slu Ala Ala Cys 1070	ccc 3216 Pro
50	ctu see ica tos tot Leu Pro Ser Ser Cys 1075	gea cag ctg cca cgc Ala Gin Leu Pro Arg 1980	oca tgo cta ccc cca Pro Cys Leu Pro Pro 1085	aga 3264 Arg
33	got can cat too too Ala Ris Bis Ser Trp 1990	atg cag coo coa geo Met Gin Pro Pro Ala 1893	too dag act ord ggd Sar Gln Thr Leu Gly 1100	gtg 3312 Val
60	- Ala Ala Ala Pro	ggg acc ego cac tgg Gly Thr Arg His Trp 1110	Glu Thr Arg Ser Lev	cgg 3380 Arg 1120
	raç con cog aag tto Gin Pro Pro Lya Phe	top ctg top occ ctg Ser Leu Cys Pro Leu	Giy Pro Ser Gly Ala	tgg 3408 Trp

			14 ¹¹	
		129	2330	1135
S.	agr ags ogg ogc : Ser Ser Ard Ard : 1140	Ser Ser Tro Ser	age etg gge egt gro Ser Leo Gly Arg Ala 145	cag cct cas 3456 Sin Pro Sis 1150
180	gog cop gog tge : Ala Pro Ala Cys : 1155	cag tot ggg gaa 31n Cys Gly Glu 1160	oyt gag toc otg 21g Arg Glb Ser Leu Leu 1185	rot ggo gag 3504 Ser Gly Glu
10 .	ggc aag ggc ago Sly Lys Siy Ser 1178	aco gac gac gas Thr Asp Asp Glu 1175	got gag gac ggc agg Ala Gib Asp Giy Arg 1180	gog ogs tos 3552 Ala Arg Ser
13	ggg ccc cgt gcc Gly Pro Arg Ala 1185	acc cca ctg tgg Thr Pro Lew Arg 1190	onn geo gag too big Ary Ala Glu Ser Leu 1195	gac cos ogg 3600 Asp Pro Arg 1200
20	Pro Leu Arg Arg	seg out one god Pro Pro Pro Ala 205	tac caa gtg cgc gat Tyr Gln Val Arg Asp 1210	cgc gac ggg 3648 Arg Asp Gly 1215
25	cag gtg gtg gcc Sin Vai Vai Ala 1226	beu Pro Ser Asp	tto tto org ogo aco Phe Phe Leu Aro Ile 225	gac ago cac 3696 Asp Ser Bis 1230
· 30	cgt gag gat gca Arg Glu Asp Ala 1235	gad gag att gad Ale Glu Leu Asp 1240	gac gac t o g gag gac Asp Asp Ser Glu Asp 1245	Ser Cys Cys
30	ots ogo otg cat Leu Arg Leu His 1250	aaa gtg ctg gtg Lys Val Leu Val 1255	coc tan aag oon cag Pro Tyr Lys Pro Glo 1260	ogg tgo ogg 3792 Arg Cys Arg
35	ago agg agg oct Ser Arg Arg Pro 1265	ggg con tot son Gly Fro Ser Thr 1270	one two oto the too Les Tyr Les Phe Ser 1375	cca cag aac 3840 Pro Gin Asn 1280
40	Arg Phe Arg Val	toc toc cag aag Ser Cya Gin lys 283	gto ato aca cac eag Val fle Thr His Lys 1290	atg tit gat 3868 Met Phe Asp 1295
45	cac gtg gtc ctc His Val Val Leu 1300	Val Phe Ile Phe	cho aac tgo god acc Leu Asn Cys Val Thr 305	ato goo oog 3936 Ile Ala Leu 1310
50	gag agg cot gac Glu Arg Pro Asp 1315	att gat ccc ggc Ile Asp Pro Gly 1320	ago aco gag ogg gto Ser Thr Glu Arg Val 1325	Phe Leu Ser
30	gtm roc ast tac Val Ser Asn Tyr 1330	ate the acg goo lie Phe Thr Ala 1335	ato tto gog gog gag lle Phe Val Ala Glo 1340	ratg ang gry 4032 : Men Men Yal
55	aag grg grg gcc Lys Val Val Ala 1345	ctg ggg ctg ctg Leu Gly Leu Leu 1350	too ggo gag cae go: Sar Cly Glu His Als 1355	: tac ctq caq 4080 : Tyr Leo Glo 1360
60	Ser Ser Trp Asn	otg otg gat ggg Leu Leu Asp Gly 365	ctg ctg gtg ctg gtg Let Len Val Let Val 1376	too otg gtg 4128 Ser Leu Val 1375
	gac att ytc gtg Asp lie Val Val	occ stg ged teg Ala Met Ala Ser	get ggt ggc gcc aas Ala Sly Sly Ala Lys	pato otg ggt 4176 Flie Leu Gly

	1380		1385	1390	
5	gtt etg ege geg et Val Leu Arq Val Le 1395	og ogt otg oug su Arg Leu Leu 1400	Arg The Lew	ogg cot otg mag Arg Bro Leu Arg 1405	gto 4224 Val
10	ats age egg god of Ile Ser Arg Ala P: 1410	og ggc sts aag o Sly Leu Lys 1415	Len Val Val	gag as; Stg ata Glo Tht Leo Ile 1920	tes 4272 Ser
3:Q	tca sto agg coc at Ser Leu Arg Pro I. 1425	tt ggg ææt ætt ie Gly Asn Ilæ !430	gto oto ato Val Leu lie 1435	-Cys Cys Ala Pne:	ttc 4320 Phe 1440
13	atc att tit ggn a lle lle Phe Gly I l4	le Leu Gly Val	gag etc tro Gin Leu Phe 1450	eee ygy eeg tto Lys Gly Lys Phe 1455	rsc 4368 Tyr
20	tac tạc gay gặc c Tyr Cya Giu Gly P 1460	ro Asp Thr Arg	aac atc tcc Asn Ile Ser 1455	see sag gos cag The Lys Ale Gln 1470	ego 4416 Cys
23	con god god cad t Arg Ala Ala His T 1475	ac ogo tgg gtg yr Arg Trp Val 1480	Arg Arg Lys	tac man the gac Tyr Asn Phe Asp 1485	aac 4464 Asn
30	ctg ggc cag gcc c Leu Gly Gln Ala L 1490	tg atg tcg ctg en Met Ser Lev 1495	Phe Val Leu	toa too asq gat Ser Ser Lys Asp 1500	gga 4512 Gly
- Age	tgg gtg aac atc a Tep Val Asn lie M 1505	tg tat gat 999 et Tyr Asp Gly 1510	r sty gat gos / Leu Asp Ala 1515	. Val Gly Val Asp	cag 4560 Gln 1520
35	cag cot gtg cag a Gin Pro Val Gin A 15	sn Ris Asn Pro	: tgg stg ctq : Trp Met Leu 1530	ong teo tro and Leu Tyr Phe Ile 1838	too 4608 Ser
40	tto stg otc atc g Phe Leu Leu Ile V 1540	al Sar Phe Phe	: qrg ctc aac : Val leu Asn 1545	atg ttc gtg ggc Met Phe Val Gly 1550	gts 4656 Val
45	gtg gtc gag aac t Val Val Siu Aan P 1555	tr cac eag t gc he His Lys Cys 1560	Ary Pro His	cag gag gcg gag Gin Glu Aia Giu 1565	gag \$704 Glu
50	gog ogg ogs g Als Arg Arg Arg G 1570	ag gag aag cgg itu Glu Lys Arg 1575	; ctg ogg ogc ; Leu Arg Arg	cta gag agg agg Leu Glu Arg Arg 1580	ogo 4752 Arg
~ 	agg age act tre c Arg Ser The Phe P 1585	or ago coa gag ro Ser Pro Glo 1590	y god dag dge x Ala Gln Arq 1595	; Arg Pro Tyr Tyr	gcc 4800 Ala 1600
33	ged tad tog dod a Asp Tyr Ser Pro I 16	eg ege oge tig br Arg Arg Tri 105	g att car tog 5 lie Hiz Sex 1610	; chg tọc acc ago : Leu Cys Thr Ser 1613	HII
60	cat oto gao oto t Tyr Leu Asp Leu F 1620	he lie Thr Pho	r atc atc tg: a lie lie Cy: 1625	gsc aac gtc atc val Asn Val Ile 1630	acc 4896 Thr
	atg too atg gag o Mat Sar Met Glo b	sec tat aac cas His Tyr Ash Sl:	a com aag tçç n Pro Lys Sæ:	y ctg gac gag gcc : Leu Asp Glu Als	: 000 1944 : Led

	1670	. 3	\$40	1645	
	aag tao tgc Lya Tyr Cya 1650	aec tac gtc two Asn Tyr Val Phe 1688	acc are gto The lie Val	ttt qtc tic qeq Phe Val Phe Siu 1668	got goa - 4992 Ala Ala
: fû	otg sag big Leu Lys Leu 1663	gte gos tit 999 Val Als Phe Siy 1670	Phe Arg Arg	tto tro esg pac Phe Phe Lys Asp 673	agg tgg 5040 Arg Trp 1680
ं ड ्डिक	aat tag ctq Ash Win Leo	gad otg god atc Asp Les Ala Ila 1685	grą crą ctą Val Lau Lau 1690	tom the sty age Ser Leu Met Gly	atc acy 5089 lle Thr 695
15		ata gag atg agc Tle Glu Met Ser 1700	god gog dtg Ala Ala Leo 1705	con and aso occ Pro Ile Asn Pro 1710	acc arr 5136 The lie
20	ato oge atc lie Arg lie 1715	Met Arg Val Led	ogo str god Arg Ile Ala 1720	cgt gtg cig sag Arg Val Leu Lys 1725	org org 518% Leu Leu
23	aag atg got Lya Net Ala 1730	acg ggc atg cgc Thr Gly Met Arg 1735	god org org Ala Leu Leu	gac act gtg gtg Asp Thr Val Val 1740	caa get 5232 Gln Ala
30	oto oco sag Leu Pro Gin 1745	gig ggg aac otg Val Gly Asn Leu 1750	Gly Leu Leu	tto atq oto otg Phe Met Leu Leu 755	ttt ttt 5780 Phe Phe 1760
w N	sto ter got Ile Tyr Ala	gog otg gga gtg Ala Lau Gly Val 1765	gag ong tho Giu Leu Phe 1770	ggg agg ctg gag Gly Arg Lau Glu 1	tgc agt 5328 Cys Sec 775
38	Glu Asp Asn	obo tgo gag ggs Pro Cys Glu Gly 1780	ctg agc agg Leo Ser Arg 1785	cac goo aco tto Nis Ala Thr Pha 1790	agc aac 5376 Ser Ash
30	ttc ggc atg Phe Gly Met 1795	Ala Phe Led Thr	otg ttc ogc Leu fhe Arg 1800	gtg tre acg ggg Val Ser Thr Gly 1805	gac aac
43	tgg sac ggg Trp Asn Gly 1810	atc atg aag gac lle Met Lys Asp 1813	The Leu Arg	gag tgc tcc cgt Glu Cya Ser Arg 1820	gag gac 5472 Glu Asp
50	aag cac tgc Lys His Cys 1825	org ago tac org Leu Ser Tyr Leu 1830	Pro Ala Pro	toy doc gtc tac Ser Pro Val Tyr 1835	ttc gtg 5520 Phm Val 1840
in in	acc ttc gtg Thr Phe Val	etg gtg con osg Leu Val Pro Gin 1845	ttc gtg ctg Fhe Val Leu 1850	gtg aac gtg gtg Val Asn Val Val J	gtg god 5568 Val Ala 855
<i>33</i>	Val Leu Met	aag cac oog gag Lys His Leo Glo 1860	gag agc aac Glu Ser Asn 1865	aag gag got ogg Lys Glu Ala Arg 1870	qaq qat 5616 Glu Asp
60	gcą gag chg Ala Glu Leu 1875	Asp Ala Glu Ile	gag ong gag Glu Lau Glu 1880	atg gog cag gac Met Ala Gin Gly 1885	noo ggg 5664 Pro Gly
	agt gca cgc Ser Ala Arg	ogg gtg gac gog	gac agg cor Asp Arg Pro	occ try coc cay Pro Leu Pro Gin	gag agt 5712 Glu Ser

	1890	1898	1300		
	cog ggo gcc agg Pro Gly Ala Arg 1905	gad gut vue a Asp Ais Pro A 1910	ac ctg gtt gca ogc an Leu Val Ala Arg 1915	asg gtg too gtg Lys Val Ser Val 1820	5760
10	Ser Arg Met Leu	tog etg soc a Sør Leu Fro A 1925	ac qac ago tac atg an Aap Ser Tyr Met 1930	ctc agg coc gtg Phe Arg Pro Yal 1935	5608
***	gtg cet gee tog Val Pro Ala Ser 1940	geg cee cac c Ala Fro His P	cc cgc ccg ctg cag ro Arg Pro Leu Gin 1945	gaş gtç gaş atg Glu Val Glu Met 1950	5856
13	gag acc tar ggg Glu Thr Tyr Gly 1935	gcc ggc acc c Ala Gly The P	co tig ggc toc gic ro Leu Gly Ser Val 60	goo tot grg cac Ala Sec Val Bis 1965	5904
20	tot deg ede goa Sør Pro Pro Ala 1976	gag too tgt q Glu Ser Cys A 1975	oc tee ete eag at: la Ser Leu Gln fle 1980	Pro Leu Ala Val	5952
23	tog toe oom ged Ser Ser Pro Alm 1985	agg agg ggc g Arg Ser Gly G 1990	ag son ote cae god in Pro Leu His Ala 1995	cig tad cet agg Lea Ser Pro Arg 2000	8000
30	Gly The Ale Arg	toe ood egt o Ser Pro Ser L 2005	to ago ogg otg oto eu Sar Arg Leu Leu 2010	tọc aga cag gag Cya Arg Gln Glu 2015	5048
	got gtg cac acc Ala Val His Thr 2020	Asp Ser Leu L	aq gga ega tig aca ya Gly Arg Leu Thr 2025	quu uta ggg aca Ala Leu Gly Thr 2030	6096
33			tg aga aas coo cgg al Arg Lys Pro Arg 40		6132
40	<210> 10 <211> 6114 <212> DNA <213> Homo sapi	ans.			
43	<220> <221> CDS <222> (1)(611	43			
50	<400> 10 atg acc gag ggc Met Thr Glu Gly l	gca cgg gcc g Ala Arg Ala A S	co gao gag gto ogg La Asp Glo Val Aro 10	gtg coc otg ggg Val Pro Leu Gly 15	48
55	egs age eec tgg Arg Arg Pro Trp 20	ecc the dae o Pro Cys Gly V	rt ggt ggg ggc gtc ai Gly Gly Gly Val 25	: cos gga gag cos Pro Gly Glu Pro 30	96
60	cgg gga gaa ggg Arg Gly Ala Gly 35	Thr Arg Gly G	iga ggg ggg tto gag lly Gly Cly Pae Glo 40	; ctc ggc gtg tca : Leu Gly Val Ser 45	144
			yag ege tge geg gay Nu Arg Cys Als Glv Ef	r Leu Gly Ald Asp	192

	9#9 Glu 65	glu	caq Sin	ege Arg	yai arr	cog Pro 70	ter Tyr	ong Pro	goc Ala	ren red	gog Ala 75	goo Ala	atg Thr	gtc Val	ros Phe	ttc She	240
,50	tgc Cys	ata Leu	ggt Gly	cag Gin	acc The 85	acg Tar	Arg egg	pro ced	ege Arg	aqc Ser 90	igq Trp	tga Cys	000 160	cgg Arg	ecq Leu 95	gtc V&l	288
30	tgc Cys	aac Asn	cos Pro	tqq Trp 100	ttc Phe	gag Glu	cac His	gtg Val	agc Ser 105	erg erg	atg Leo	gla Val	ato Ile	atq Met 110	ctt Leu	aac Asn	336
15	tgc Cys	gtg Val	acc Thr 115	ctq Leu	Gly ggc	arg Met	655 869	099 Arg 120	Pro	tgt Cys	Glu gag	gac Asp	gts Val 125	gag Slu	tgc Cys	go: Gly	384
20	toc Ser	gag Glu 130	yrd ede	Cys	aac Asn	ats	ctq Leu 135	gag Glu	god Ala	ttt Phe	gac Asp	gcc Ala 140	tt: Ens	att Tle	ttc Phe	grc Ala	432
25	ttt Pho 145	ttt Phe	gcq Ala	gtg Val	gag Glu	atg Met 150	gtc Val	ate	aaq Lys	atg Met	gtg Val 155	gcc Als	tig Leu	GTÅ ååå	ctg Leu	tto Phe 160	480
	999 51y	Cag Gln	aag Lys	tgr Cys	tac Tyr 165	otg Leu	ggt Gly	gac Asp	acg	tqq Trp 170	ssc Asn	agg Arg	otg Leu	gat Asp	tta Phe 175	tto Phe	328
30	atc Ile	gtc Val	gtg Val	gog Ala 180	Gly ggc	atg Met	atg Met	gag Glo	tac Tyr 185	tog Ser	ttg Leu	gac Asp	gga Gly	cac His 190	aac Asn	gtg Val	576
35	ayc Ser	ctt Leu	tog Ser 195	get Ala	atc	agg Arg	acc Thr	gtg Val 200	cgg Arg	grg Val	erq Leu	cgg Arg	000 800 205	oto Teu	ege Arg	gcc Ale	624
40	atc Ile	asc Asn 210	Arg	gtg Val	ect Pro	age Ser	arq Mer 215	ogq Arg	atc	ctq Leu	gte Val	act Thr 220	ctq Leu	ctq Leu	ctg Leu	gat Asp	672
43	acg Thr 225	ctq Leu	Pro	atg Met	ete Leu	530 617 ada	aac Asn	gtc Val	cer Leu	ctg	ctg Leu 235	Cys	ttc	ttc Phe	gtc Val	ttc Phe 240	728
	ttc Phe	att	tto Phe	Gly	ato Ile 245	gtt Väl	ggc 6ly	gtc Vai	cag Gln	ctc Les 250	tog Trp	got Ala	Gly	sto Leu	ctş Leu 255	arg	768
50	aac Aso	Arq	tga Cys	tro Phe 260	etg Leu	gac Asp	agt Ser	gcc Ala	ttt Phe 265	gtc Val	agg	aac Aso	aac Asn	aac Asn 270	ctg Leu	acc	916
33	tto Phe	ctq Leu	cgg Arg 275	gog Pro	tac Tyr	tac Tyr	cag Gln	acq Thr 280	gag Giu	gag Siu	01 Å ååc	gag Glu	gag Glu 285	aac Asn	oog Pro	ttc Phe	864
60	stc Ile	tgc Cys 290	Ser	Ser	ege Arg	oga Arg	9ac Asp 295	Asn	ggc Gly	atg Met	caq Gln	aaq 1ys 300	tgc Cys	tog Ser	eac His	att. Tie	912
	ccc Fro 305	21A aac	ers ers	ege Ary	gas Asp	gtq Väl 310	Arg	atg Met	Pro	tgc Cys	sco Thr 315	ែខារ	gge Gly	tgg Trp	gaç Glu	qoc Ala 320	960

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	tac Tyr	acg Thr	caq Cla	5x0 ccd	cag Gin 325	gec Ala	gag Glu	gly ggg	ver Ver	330 330	gor Ala	goa Ala	tgo Arg	aac Asn	gcc Ala 335	tgc Cys	1808
	att Ile														Ser	aac Asn	1056
10									gac Asp								1104
13	gcc Ala																1152
20	tec Tyr 385	gtc Val	atq Met	gas Asp	gec Ala	cac 81s 390	toa Sec	tte The	iyr	aac Asn	ssc Phe 395	atc Ile	tac Typ	btc Phe	atc Ile	cty Leu 400	1200
25	ato Leu	atc Tie	ate Tie	gtg Val	990 817 408	tec Ser	ttc Phe	ttc	stq Net	atc Ila 410	aac Asn	ctg	tge Cys	stq Leu	gtg Val 415	gtg Val	1288
· Mag Marie																atg Met	1296
30	cgg Arg	gag Slu	caq Gln 435	Arg	gca Ala	cgc Arg	cac Ris	ong Leu 440	rce Ser	aac Asn	gac Asp	agc Ser	acq Thr 445	otg Leu	gcc Ala	agc Ser	1344
33									gaa Glu								1392
40	cac Nis 465	eta Ile	tts Phe	cgc Arg	aag Lys	gto Val 470	aag Lys	cgg Arq	cgc Arg	aqu Ser	ttg Lea 475	cgc Arg	ctc	tac Tyr	gcc Ala	ogo Arg 480	1440
43	tgo Trp	cag Gln	agc Ser	ogc Arg	tgg Trp 485	Arq	aaq Lys	aag Lys	gtg Vai	gac Asp 490	Pro	agt Ser	gct Ala	gtg Val	caa Gln 495	ggc Sly	1488
2.25	cag Gln	ggt Gly	ecc 8ro	999 Gly 500	cac His	grd cdc	cag Gin	cgc Arg	cgg Arg SOS	gca Ala	ggc Gly	agg Arg	cac His	aca Thr 510	gce Ala	tog Ser	1536
30	gtg Val	cac His	cac His 515	etq Leu	gto Val	tac Tyr	cac His	cac His 520	cat His	cac Nis	cac His	cac His	282 818 525	eac His	cac His	tec	1584
33									Arg agg				eln				1632
60	ogo Cys 545	gac Asp	acc	agg Arg	stg Lea	gtc Val 550	cga Arg	got	ggc	gcg Ala	ccc Pro 555	pro	ger	cca Pro	cet Pro	too Ser \$60	1680
	cca	Gly	ogc Arg	gga Giy	000 Pro 363	\$20 000	gac Asp	gca Ala	gag Glu	tot Ser \$70	gtg Val	cac His	ago Sez	atc Tie	tac Tyr 575	cat Nis	1728

	gee	gati	10 mm	282 84.4	878 114	gag cs.	999	cog	Cag Cir	983	8 G G	000 81 s	233	gtg Val	ggs Gly	aca Thr	1778
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															gct Ala	eră aaa	1824
10			G.L.u					Pro							Arq agg		1,872
(i)	agq Arg 625	cag Gln	cac Bls	cag Gln	520 000	099 Arg 630	acc	daa Gln	27.Å 333	gaa Glo	gtg Val 635	ggc Gly	egg Arg	tgg Trp	acc Thr	gcc Ala 640	1850
20	agg Arg	cac Sis	ogg Arg	61 y 999	cac His 645	gac	pro	ttg Leu	ser Ser	ttg Leu 650	aac Asn	agc Set	est 9f0	gat Asp	000 Pro 655	tac Tyr	1968
i de la companya de	gag Glu	aag Lys	atc Ile	ccg Pro 660	cat Nis	geg Val	gco Ala	GIA dad	gag Glu 665	cat His	gly	ctq Leu	gge	Caa Gln 670	gee Als	ccr Pro	Soit
25.	614 900	cat His	otg Seu 675	toq Ser	Gly	ctc Leu	agt Ser	gtg Val	occ Pro	tgc Cys	ccc Pro	otg Leu	coc Pro 685	agc Ser	Bro	eca Pro	2064
30	gcg Ala	830 837 894	aca Thr	ren ced	acc The	tgt Cys	gag Glu 695	ren afd	rys	agr Ser	tgc Cys	009 810 700	tac Tyr	tgc Cys	acc Thr	egt Arg	SIIS
33	gcc Ala 705	ctg Leu	gag Glu	gac Asp	ccg	gag Glu 710	ggt Gly	gag Glu	oto oto	ser	990 61y 715	cog	gaa Glu	agt Sør	gga Gly	gac Asp 720	2160
40	tca Ser	gat Asp	ggc Gly	ogt Arg	ggc Gly 725	gtc Val	tat Tyr	gaa Slu	tro edq	acq Thr 730	cag Slo	gac Asp	gtc Val	cgg Arg	cac Mis 735	ggt Gly	2208
, general	gac Asp	ege Arg	tgg Trp	980 Asp 740	PIO	acg Thr	cga Arg	eca	000 200 745	arq Arq	gcg Ala	acg Thr	qac Asp	aca Thr 750	cca Fro	ggc Gly	2256
45															gcc Ala		2304
50	gac	gag Glu 770	820	617 gac	tgg Trp	atq Net	ggc Gly 775	cgc Arg	ata Leu	tgg Trp	git Val	acc Thr 780	ttc Phe	agc Ser	gac Gly	asg Lys	2352
58	ctq Leu 785	arg Cgc	ege Arg	ato Ile	gtg Væl	gac Asp 790	agc Ser	aag Lys	tac Tyr	ttz Phe	ago Ser 798	ogt Arg	ggc Gly	atc lle	atg Met	atg Met 900	2400
60						Thr									989 Glu 815		2448
	Sec Sec	gaq Glu	Glu	820 Leu ctq	Thr	335 350	gct Ala	Ctg Lau	989 61u 825	atc 11e	agc Ser	aac Asn	ato 11e	gtg Val 830	tts Phe	acc Thr	2496

ě.	201 201	ato Met	ttt Pne 838	gcc Ala	Leu	ga;	atg Met	Eeu Eeu	orq Leu	rys ead	ctq Leu	ctq leu	gss Ala 845	tes Cys	erk aad	510 222	2544
Š															erc Ile	gtg Val	2592
10	gtc Val 865	ato Ne	ago Ser	gtc Val	tyg Trp	gag Gi: 870	ato Ila	A#Ţ Grā	63 À 333	cag Gin	gcg Ala 875	gac Asp	Giy gat	er? aas	ttg Leu		2640
15	Ari ata	çtç Lau	cgc Arg	acc The	ttc Phe 885	VI.1 CAA	ctg Lea	otg Leu	cqt Arq	gtg Val 890	pen	aag Lys	cig Leu	Asr aca	ege Arg	phe ttt	2688
20	otg Leu	cca Pro	goc Als	ctg Leu 900	ogg Arg	ogc Arş	cag Gln	ctc Leu	yai yai gtg	gtg Väl	atg Leu	gtg Val	aag Lys	acc Thr 910	atg Met	gec gec	2736
ും ത്				Thr											atc Tle		2784
25															aaq Lys	1 July 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	2832
30	gac Asp 945	acc Thr	gjy gga	gac Asp	acc The	gtg Val 950	oct Pro	gac Asp	agg Arg	asq Lys	880 Asn 955	ttc Phe	gac Asp	toc Sar	rea	ctg Leu 960	3880
35															tgg Trp 975		2928
40					$\mathbb{A} \otimes \mathbb{N}$										god Ala		2976
45	tac Tyt	ttc Phe	grg Val 995	gcc Ala	ctc Leu	atç Met	Thr	ttc Phe 1000	ggc Gly	aac Asn	tat Tyr	Val	oto Leu 1005	tte Phe	aac Asn	stg Leu	3024
45	Leu					Val					Ala				gcc Ala		3072
50		Ser			Asp					Ser					gaç Glo		3120
33				Leu					Thr					Mess	tgt Cys 1055		3168
60			Val					Thr					ALA		tgt Cys		3216
		Fro					Gin					Cys			cca Pro		3264

Š	got cap per Ala His His 1090	tet 199 atg tag Ser Typ Mat Olm 1095	Pro Pro Ala	too dag act Sar Gin Thr 1100	ata ggs gtg Leo Gly Val	3312
	gca gos gos Als Als Als 1105	got day ggy acc Ala Pro Gly Thr 1110	Arg Sis Trp	gag acc aga Glu Thy Arg 1115	ago sto sag Ser Leo Arg 1120	3360
10	cag cot cog Gin Pro Pro	aag too too otg Lys Phe Ser Leu 1125	tgo coo ctg Cys Pro Leu 1130	ggg ccc agt Gly Pro Smr	ggc gcc tgg Gly Ale Trp 1135	3408
13	Ser Ser Arg	ogo toc ago tgg Arg Ser Ser Trp 1140		Gly Arg Ala		3456
20	gog cog gog Ala Pro Ala 1158	toe dag tot ogg Cys Gln Cys Gly	gaa ogt gag Glu Arg Glu 1160	toc and cog Ser Leu Leu 1165	tot ggo gag Ser Gly Glu	3504
23	ggc aag ggc Gly Lys Gly ll70	ago aso gao gao Ser Thr Asp Asp 1175	Glu Ala Gla	gac qgc agg Aap Gly Arg 1180	gog oge too Ala Arg Sar	3552
- 100 jag		got acc cca ctg Ala Thr Pro Leu 1190	Arg Arg Ala			3500
30		egg deg eet eed Arg Pro Pro 1205				3648
35	Gln Vel Val	ger sty see age Ala Lau Pro Ser 1220	gac tto tto Asp Phe Phe 1223	Leu Arg Ile	gac agc cac Asp Ser His 230	3696
40		gca gcc gag ctt Ala Ala Glu Leu				3744
45	ctc ogo ctq Leu Arg Leu 1250	cat asa gtg ctg His Lys Val Les 1255	Val Pro Tyr	say ccc cag Lys Pro Gln 1260	egg tge egg Arg Cys Arg	3792
		cot ggg see tot Pro Gly Pro Ser 1270	The Lew Tyr			3840
<i>\$0</i>		gto too tgo caq Val Ser Cys Glo 1295				3888
55	His Val Val	ctc gtc ttc atc Leu Val Phe lis 1300		Cys Val Thr		3938
60		gac att gat ccc Asp lie Asp Pro				3984
		tac arc the acc Tyr lie Phe Thr 1935	' Ala Ile Phe			4032

3.	eag gtg 9tg gcc ctg ggg ctg ctg ttt ggc gag dat gcc tac ctg Cag Lys Vai Val Ala Leu Cly Les Les Ser Gly Glu His Ala Tyr Leu Gln 1345 1350 1360	4080
	ago ago tgg aan nng ong gat qgg ntg ntg gtg ntg gtg too ong gtg Ser Ser Tro Aen Leu Leu Aep Gly Lau Leu Val Lau Val Ser Leu Val 1365 1370 1375	4228
10	gad att grd gtg gdd atg gdd tog gdt ggt ggt gdd sag atd otg ggt Amp lle Val Val Ala Met Ala Ser Ala Gly Gly Ala Lym Ile Led Gly 1380 1395 1390	4176
lš	gtt Org oge gtg sty sgt org org ogg ace org ogg eet otg agg gto Val Leu Arg Val Leu Arg Leu Leu Arg Thr Leu Arg Pro Leu Arg Val 1395 1400 1405	4224
20	ato ago egg geo eeg ggo etc aag eeg gtg gtg gag aeg etg ata tea Ile Ser Arg Ala Pro Gly Leu Lys Leu Val Val Glu Thr Leu Ile Ser 1410 1415 1420	4272
25	tos etc agg cec art ggg agc att gto etc are tge tge gec tto tto Ser Leu Arg Pro Tie Gly Asn Tie Val Leu Tie Cys Cys Ala Phe Phe 1425 1430 1435 1440	4320
	atc att ttt ggc att tig ggr gig cag ctc ttc aaa ggg aag tic tac Tie The Phe Cly The Leu Gly Val Gin Leu Phe Lys Gly Lys Phe Tyr 1445 1455	4388
30	tac tgo gag gge coc gas ace agg aac ato tco ace aag gos cag tgo Tyr Cys Gie Gly Pro Asp Thr Arg Aso lie Ser Thr Lys Ala Gin Cys 1460 i465 1470	4416
33	ogg god god dad tad ogd tgg gtg dga dgd aag tad aad the gad aad Arg Ala Ala His Tyr Arg Trp Val Arg Arg Lys Tyr Asn Phe Asp Asn 1475 1480 1485	4454
40	org ago dag doc erg atg tog org tro atg erg tos tot sag gat ago Leu Gly Gln Ala Leu Met Ser Leu Phe Val Leu Ser Ser Lys Asp Gly 1490 1495 1500	4512
45	tgg gtg aas ats atg tas gas ggg stg gat gos gts ggt gts gas sag Trp Val Aan lie Met Tyr Aap Gly Leu Aap Ala Val Gly Val Aap Gln 1505 1510 1515 1520	4560
	cag cot gtg cag aac cac aac oor tgg atg ctg ctg tac toc atc toc Gin Pro Val Gin Asn His Asn Pro Tro Met Leu Leu Tyr Phe Ils Ser 1535 1530 1535	4608
50	tte ong one ato gue ago the the gug one aac ang the gug gue gue Phe Leu Leu Iie Val Ser Phe Phe Vel Leu Ash Met Phe Val Gly Val 1540 1545 1550	4655
35	gty gtn gag aac tto can aag tyd ogg oog can bag gag gog gag Val Val Glu Asn Phe His Lys Cys Arg Pro His Gln Glu Ala Glu Glu 1555 1560 1565	4704
60	gcg cgg cgg cga gag awy cgg ctg cgg cgc ctw gag agg cgc Ala Arg Arg Elu Glu Lyx Arg Leu Arg Arg Leu Glu Arg Arg 1570 1575 1580	4752
	agg aag ges dag ego egg dee tat tat gen gad tan tog dee acg ego Arg Lys Ala Gln Arg Arg Pro Tyr Tyr Ala Asc Tyr Sar Pro Thr Arg 1585 1590 1595	4800

	ogo tgg at: Arg Tro Il:	t pas tog u: 9 His Ser L: 1603	ig tigo doo su Cys Thio	ago can ta Ser His Ty 1610	r atc gec of I Leu Asp Le	o tic ato : Phe Ils 1815	******
* J	acc ttc at The Pha II:	: at: Iqt g) > Ile Cys Y: 1820	:L'Asn Val	ato acc at The Thr Me 625	g toc ary ga t Ser Met Gl 163	a His Tyr	4896
. 10	aac caa co Asc Slo Pr 163	o Lys Ser L	ig gad gag en Asp Glu 1640	god oto aa Ala Leu Ly	g tar tgr aa s Tyr Cys As leej	n Tyr Yal	4948
13	ttc acc at: Phe Thr Il: 1850	c gtg ttt g e Val Phe V	ic ttc gag al Phe Glu 1855	gut gos ot Ala Ala Le	g asg ong gt u lys Lei Va 1660	a goa til L Ala Phe	4992
20	ggg ttc cg Gly Phe Ar 1663	t egg the to g Arg Phe Pi le	ie Lys Asp	agg tgg as Arg Trp As 167	e cag cig ga n Gin Leo As 'S	o etg god p Leu Ala 1680	5040
73	atc gtg ct ile Vai be	g stg tos s n Leu Ser L 1605	rc and dac au Mer Gly	ato acq ct Ile Thr be 1690	q gag qag at m Glu Glu Il	a gag atg e Glo Met 1695	5088
	ago goo go Ser Ala Al	g ctg ddc a a Leu Pro I 1700	le Asn Pro	acc stc at The Ile Ii 705	c ogo atc at e Arg lle Me 171	t Arg Val	5136
30	ett ege at Leu Arg Il 171	e Ala Acg V	tg otg aag al Leu Lys 1720	cty cty as Leu Leu Li	ig atg got ac ya Mat Ala Th 1725	g gep atq r Gly Met	5184
35	cgc gcc ct Arg Ala Le 1730	g ctg gac a u Leu Asp T	ot gtg gtg hr Val Val 1735	taa got of Gin Ale Le	to odd gag gt sy Pro Oln Va 1740	g ggg aac 1 Gly Asn	5232
40	ctq qqc ct Leu Giy Le 1745	t off bic a u Leu Phe M 17	et Leu Leu	ttt ttt a: Pha Pha I) 17:	to tat got go Le Tyr Aie Ai iS	g otg gga a Leu Gly 1760	5280
45	gtg geg ot Val Glu Le	g ttc gog a u Phe Gly A 1765	gg ctg gag rg Leu Glu	tgo agt ga Cys Ser G 1770	aa gat aas sc iu Asp Asn Pr	c tgc gag c Cys Glu 1775	5328
? **	ggo otg ag Gly Leu Se	c agg cac g c Arg His A 1780	ia Thr Phe	ago aac ti Ser Asn Pi 1785	ce ggo atg gk se Gly Met Al 175	a Phe Leu	5376
30	acg ctg tt Thr Leu Ph 179	e Arg Val 8	cc acg ggg er Thr Gly 1800	gac asc to Asp Asn To	gg aac ggg at rp Asn Gly Il 1805	c atg aag e Met Lys	5424
<i>55</i>	gac acq ct Asp Thr Le 1810	g tgt gag t w Arg Glu C	go tod ogr ys Ser Arg 1815	gag gac a	ag cac tgc ct ys His Cys Le 1820	g ago tao u Ser Tyr	5472
60	ctg ccg gc Leu Pro Al 1825	oc eeg teg e a Pro Ser F 18	ro Val Tyr	the gtg & The Val T	oc tto gtg of ho Phe Val L: 35	1840 g gtg ccc	5520
	caq ttc qt Gln Phe Va	tg stg gtg a si Leu Yal P 16/15	ac gtg gtg sn Yel Val	geg gee o Val Ala V 1850	tg stc and a	g cac ctg vs His Leu 1885	5568

70 25 2	gan gan ago ago aag gag got ong gan gon gon gan gon gan gon gan Gin Gin Ser Asn Lys Sin Ala Arn Gin Asn Ala Cin Leu Asn Ala Gin 1860 1865 1867	3816
3	ato gag ong gag ang gog cag ggo non ggg agt goa ogn ngg gtg Sac Ile Glu Leu Glu Mat Ala Glo Gly Pro Gly Ser Ala Ang Ang Val Asp 1875 - 1880 - 1883	5664
10	god gae agg cet cez tig cec cad dad agt cod gge dec agg gae gec Ala Asp Arg Pro Pro Law Pro Gla Glu Sar Pro Gly Ala Arg Asp Ala 1890 1895 1900	\$712
13	com and ong gtt gom ogd mag gtg tod gtg tod agg mtg dtd tog ong Pro Asn Leu Vai Alm Arg Lys Val Ser Vai Ser Arg Met Leu Ser Leu 1905 1910 1915 1920	8780
20	ccc asn gad ago tac stg tto agg occ gtg gtg oct god tog gog occ Pro Aso Asp Ser Tyr Met Phe Arg Pro Val Val Pro Ala Ser Ala Pro 1925 1930 1935	5808
25	car occ ogn cop otg cay gag gtg gag atg gag acc tat ggg gcc ggc Hiz Pro Arg Pro Leu Gin Glu Val Glu Met Glu Thr Tyz Gly Ala Gly 1940 1945 1950	5886
Shirid.	aco ccc try gyr toc grt god trt gtg ras tot ocg rev gua gag toc Thr Pro Leu Gly Sar Val Ala Sar Val Ais Sar Pro Pro Ala Glu Sar 1955 1960 1965	5904
30	tgt god too oto cag ato coa otg got gtg tog too coa god agg ago Cya Ala Ser Leu Gln Ila Pro Leu Ala Val Ser Ser Pro Ala Arg Ser 1970 1975 1980	5953
35	ggr gag set tte car god etg ter oot ogg ggr æra god ege tor occ Gly Glu Pro Leu Bis Ala Leu Ser Pro Arg Gly Thr Ala Arg Ser Pro 1985 1990 1995 2000	6000
40	agt old ago ogg olg old tgo aga cag gag got glg cad aco gat bod Ser Leu Ser Arg Leu Leu Cys Arg Gin Giu Ala Vai His Thr Asp Ser 2005 2010 2015	6048
28	thy eag gga aga thy ace god one ggg ace cod tgg and sty cag ago Leu Lys Gly Arg Leu The Ale Leu Gly The Pro Trp Ile Leu Gin Ser 2020 2025 2030	6096
₹**	org grg aga ade occ ogg Leu Val Arg Lys Pro Arg 2035	5114
50	<210> 11 <211> 5465 <212> DNA	
55	<213> Homo mapiens <220> <221> CDS	
60	<pre><222> (1)(5469) <400> 11 atg get gag age gee tee eeg eet tee tee tet gea gea gee eea gee Met Ala Glu Ser Ala Ser Pro Pro Ser Ser Ala Ala Ala Pro Aia 1 5 10 13</pre>	- 3

	800 848	983 810	624 200	gga Gly 20	gtc Val	acc Thr	aog The	935 910	08.9 20.5 25	200 824	gga Gly	880 227	egg egg	*27 38* 30	ecc	nda Pro	96
3,	a de la companya de l	tec Ser	009 Pro 35	CC4 Pro	ggs Gly	ctg Leu	gag Giu	909 615 40	art 3rd	ctq Leu	gat. Asp	Gly	gac Ala 45	385 389	oct Pro	cat Bis	144
10	gto Val	00a Pro 50	cac His	ccs Pro	gac Asp	ctq Leu	923 Ala 55	cot Fro	att	gcc Ala	tt: Phe	ttc Pha 60	tgo Cys	ctq Leu	oga Arg	Cag Sln	192
15	acc The S5	acc Thr	agc Sex	Pro Pro	cgg Arg	aac Asn 70	tqq Trp	tgc Cys	atc lle	aag Lys	atq Mat 75	Val gtg	tgc Cys	eac Ash	ccg Pro	tgg Trp 80	240
20	rtt Phe	gaa Glu	tgt Cys	gto Val	agc Ser 85	atg Met	utg Leu	gtg Val	stc Ile	yo Leu ccg	ety Leu	eec Asn	CA2 pdc	gtq Val	eca Thr 95	ctt	288
w.A.	GLY	atq Met	tac Tyr	cag Gln 100	ccy Pro	tgc Cys	gac Asp	gac Asp	atq Met 105	gac Asp	tgo Cys	otq Leu	ser	980 Asp 110	ege Arg	tgc Cys	338
25	ràs	atc 11e	arq Met 115	caq Gin	gro Val	trt Pho	gat Asp	gac Asp 120	tte Phe	atc Tie	tit Phe	atc Ila	tto Phe 125	ttt Phe	gce Ala	atq Met	384
30	gag Glu	stg Met 130	gtg Val	oto Lau	aag Lys	atg Met	gtg Val 135	gaa	ctg Leu	gag Gly	att	ttt Phe 140	ggc Gly	asg Lys	aag Lys	tgo Cys	*32
35					aca Thr		Asn										480
40	Gly	atg Met	gtc Val	gaq Glu	tac Tyr 165	Ser Ser	etq Lou	gac Asp	\$&U	cag Gin 170	aac Asn	atc Ile	aac Asn	ctg Leu	toa Sex 175	gcc Ala	528
, .	atc Tie	ege Arg	acc Thr	gtg Val 180	cgc Arg	gtc Val	etg Leu	agg Arg	555 185	crc Leu	aaa Lys	gos Ala	sic	aac Aan 190	Arg	gtq Val	\$75
43	coc Pru	agt Ser	atq Met 195	cgg Arg	ata Ile	teu	gtg Väl	aac Asn 200	ctg Leu	ctc Leu	ctg Leu	gac Asp	aca Thr 205	Leu	Pro	atg Met	624
3 0	ctg Leu	310 210	aat Asn	gtc Val	ctq Leu	ctg Lau	oto Leu 215	tgc Cys	ttc Phe	ttt Pha	qtc Val	ttc Phe 220	t t c Phe	atc Ile	ttt Phe	Gly GGC	672
55	atc Ile 225	ata Ile	ggt Gly	gtg Val	cag Gln	oto Leu 230	tgg Trp	gog Als	ggc Gly	Leu	otq Leu 235	ogt Arg	aac Aan	cgc Arg	tgc Cys	tto Phe 240	720
, en	ctg Lau	gag Glu	gag Glu	aac Asn	tto Phe 245	acc Thr	ata [le	caa Gln	gaa Gly	gat Asp 250	gtg Val	gcc Als	ttg Leu	ooc ¥ro	cca Pro 25%	Tyc	768
60	tac Tyr	çag Gin	ccq Pro	gag Glo 260	019	gat Asp	gat Asp	gag Glu	atg Net 269	gee	ttc She	atc Ile	tgc Cys	toc Sex 270	stg Leu	tog Ser	818

	61Å 900	gsc Asp	aal Asn 275	62γ 399	ata lie	atg Met	era aar	IGC Cys 280	dis	617 617	ált Tie	220 200	773 273 285	ara Leu	aag Lys	914 383	88
. <u>Ş</u> .:											qac Asp					gly Gly	912:
10.	909 Ala 305	gga Giy	ogc Atg	cag Gln	gac Asp	cto Leu 310	aat Asn	gcc Als	201 201	ggs Gly	oto 188 315	tgt Cys	gts Vel	aac Aso	tgg	aac Asn 320	360
15	ogt Arg	tac Tyr	tac Tyr	aat Asc	gig Val 325	Ego Cys	ogć Arg	arg Thr	Siy	ago Sez 330	god Ala	aac Asn	ecc Pro	cac His	aag Lys 335	elå ååş	1008
20	got Ala	att Ele	sac Asn	ttt Phe 340	gac Asp	aac Asn	ato Ile	gat	cat Tyr 345	got Ala	tgg	ait	gto Val	atc lle 350	ttc Pha	ceg Gin	1056
	gtg Val	atc Ile	act Thr 355	Lau	gas Glu	813 ååc	too Trp	gog Val 360	gag Git	ato Ile	atg Met	tac Tyr	tac Tyr 365	gtg Val	atg Met	get Asp	1108
25	Ala										ato lie						11.52
30											git Väl 395						1200
ĨĨ	ttc The	tog Ser	gaş Glu	acc Thr	aaq Lys 405	caa Gln	cgg Arg	gag Glu	cac Hix	cgg Arg 410	ctg Leu	atq Mat	ctg Leu	gag Glu	caq Gln 415	cgg Arg	1248
40	cag Gin	aga Arg	rac Tyr	otq Leu 420	too Ser	toc Ser	agc Ser	acq Thr	gtg Val 425	gdd Ala	ago Ser	tac Tyr	gcc Ala	949 Glu 430	ect Pro	eiy gec	1296
2000											tge Cys						1344
45											gcc Ala						1392
50											gcc Ala 475						1440
33											ccg Pro						1488
60	gat Asp	gcg Ala	acq Thr	ccc Pro 500	cac His	acc Thr	osg Læu	gtg Val	caq Gin 505	eac Pro	atc Ile	acc Pro	gcc Ala	acg Thr 510	otg Lev	got Ala	1536
A.R.											cat Bis						1581

	\$23 \$23	tog Ser 530	939 939	reu	993 617	açç Ser	400 Thr 535	987 832	3#4 2#4	div da:	ceg Gin	949 910 540	990 917	262	ggs Gly	TTO Sec	2,632
3	993 Gly 543	Ser	801 522	got Ala	ggi	990 31y 550	989 614	gac Asp	989 514	gog Ala	gat Aso 555	ggg Gly	yat Asp	GI Y GGG	gcc Ala	cgg Arg 360	1680
10	ago Ser	agr Ser	gaq Glu	gac Asp	99a Gly 565	god Ala	tos	rca Ser	388 314	otg Leu 570	617 999	aag Lys	gag Qla	Glo	929 510 575	ga g Glu	1728
15	61u	gas Glu	cag Gin	ocq Ala 580	gat Asp	ggg Gly	gcg Als	gic Val	0 30 7 2 p 505	otg Lec	tgc Cys	ggg	gat Asp	gtg Val 590	tgg Tip	Yzd Cad	2776
20	gag Gio	acq Tor	oga Arg 695	gee Ala	aag Lys	L∉u ctq	yrd ada	600 Gly GGZ	ais Ile	val grq	gac Asp	agc Ser	489 Lys 605	tac Tyr	tto Pha	aac Asn	1024
& 9	egg Arg	990 917 610	ató	atq Met	atg Mer	goc Ala	atc 11e 615	ctg	gte Val	aac Asn	acc Thr	620 Val 620	açc Ser	atg Met	GTA Gdc	ato Ile	1872
25	989 614 625	cac His	cac	Glu	oag Gin	ccç 910 630	gag Glu	gag Glu	org Leu	acc Thr	880 Asn 835	atc 11e	ctg Leu	gag Glu	atc Ile	090 Cys 64 0	1920
30	aat Asn	gtg Val	qcc Vai	ttc Phe	acc Thr 645	agc Sar	atg Met	ttt Phe	gcc Ala	otg Leu 650	gag Glu	atq Met	acc Ile	otq Lep	889 Lys 655	atg Leu	1968
35	gct Ala	gca Ala	ttt Phe	660 61y	ara Leu	tto	gac Asp	tac Tyr	ctq Leu 665	egt Arg	aac Asn	Pro	tac Tyr	aac Aan 670	116	tt:: Phe	2018
40					gtc Val												2064
\$ Sec	gec Asp	ggt Gly 690	GIY GGG	ctg Leu	tog Ser	gtg Val	ctg Leu 695	egg Arg	acc Thi	tto Phe	egg Arg	ctq Leu 700	stg Leu	ege Arg	gtg Vel	ctg Leu	2112
45	888 Lys 705	CEG	gtg Val	cgc	tto Phe	arg Mer 710	eet Pro	goc Ala	Led	cgg Arg	cgc Arg 715	cag Gln	ctt Leu	gtg Val	gtq Val	otc Leu 720	2160
50	atg Met	aaq Lys	acc	atq 1eM	gac Asp 725	aac Asn	gtg Val	geo Ala	acc Thr	ttc Phe 730	tgc Cys	arg Met	ctq Leu	reu	atg Met 735	ctc	2208
35	tto Phe	atc Ile	She	atc ile 740		agc	ato	ctt Lea	999 61y 745	Mes to	cat His	att	ttr She	990 Gly 750	tgc Cys	aaç Lys	2256
60	tto Phe	ger	ctc Leu 785	ogo Arg	acy Thr	gac Asp	act Thr	992 61y 760	gac Asp	acq Thr	gtg Val	ecc	gac Asp 765	agg Arg	aag Lys	aac Asn	2304
N.W.	tto Phe	980 Asp 770	Ser	etq Leu	otg Leu	Tqq Trp	gcc Ala 775	Ile	gtc Val	act Thr	gtg Val	tto Phe 780	Gin	atc lie	ctc Leu	acc The	2358

	Cag Gin 785	gag Glu	qac Asp	tgg Try	aac Asn	900 Vel 790	git. Yal	oto Isu	tac Tyx	ast Ass	ggc Gly 793	atg Met	yec Ala	Sec	act Thr	to: Ser 800	2400
	202 720	tgg Trp	gee Ala	rac Ser	250 Leo 805	AAn Cap	ric Yna	gtc Val	yor Ala	oto Leu 910	atg Met	acc The	ttc Bne	377 335	asc Asc 815	is: Vyz	2448
10	gro Val	aka Leu	ttc Pas	aac Aso 820	atq	Leu	yal gog	900 Ala	anc lia 823	otg Læg	gtg Val	gag Glu	G14 G4c	::: Phe 830	cag Gln	gcg Nia	2496
15	qaq Glo	ggt ggt	gac Asp 835	gcc Ala	aat Asn	oge Arg	too Sar	tsc Tyr 840	tog Set	gac Asp	@lu qaq	gac Asp	cag G1a 845	aşc Ser	tve Ser	ter Ser	2544
10.20	ser Asn	ats Ile 850	gaa Glu	gag Glu	ttt Pha	gat Asp	saq Lys 835	oto Leu	caq Gin	gaa Glu	agc Gly	ctg Leu 860	gac Asp	ago Ser	agc Ser	gga GLY	2592
20	gat Asp 865	510 ccc	aaq Lys	ate Leu	tg: Cys	00a Pro 870	arp 11e	820 000	atg Kat	acc Thr	000 900 875	aab Ass	Gly Ggg	csc Hls	atq Læu	gac Asp 380	\$640
25	ecc Pro	agt Ser	cte	cca Pro	ctg Leu 885	ggt Sly	erk ada	cac Sis	oră Leu	991 51y 890	ect Pro	gat Ala	ejà ada	qct Ala	gog Ala 895	gça Gly	2688
30	ect	gcc Ala	820 CCC	oga Arg 900	ctc Leu	toa Ser	Ctg Leu	caq Gin	009 920 905	gac Asp	510 CCC	atg Met	otg Leu	gtg Vai 910	gcc Ala	ctg Leu	2736
35	Gly	toc Ser	cga Arg 915	aaç Lys	agc Ser	agc Ser	gto Val	atg Met 920	tot Ser	cta Leo	gly	agg	atg Met 925	ags Ser	tat Tyr	gaz Asp	2784
40	cag Sin	cgc Arg 930	toe Ser	ctg Leu	tot	agc Ser	toc Ser 935	cgg Arg	ags Set	too Ser	tac Tyr	tac Tyr 940	gly	eca	tgg Trp	gly	2832
48	cgc Arg 945	agc Ser	gog Als	gcc Ala	tgg Tep	900 Ala 950	ser ago	ogt Arg	arg ¢g¢	tee Ser	agc Ser 955	Trp	aac Aso	agc Ser	ctc Leu	aaq Lys 960	2880
43	cac His	asg Lys	pro	gro	teg Ser 965	gcg Ala	gag Glo	car	gag Glu	toc Ser 970	ctg	cts Leu	tct Ser	gcg Ala	g#g Glu 975	ege Arg	2928
50	elà aac	ej7. dac	ggc Gly	gcc Ala 980	Arg Cag	gto Val	tgc Cys	gag 015	gtt Val 985	Ala	gog Ala	gec Asp	Glu gag	990 Giy 999	ero	ecg Pro	2976
53	cgg Acg	gcc Ala	gca Ala 995	cee Pro	otg Leu	cac His		cca Pro 1000	cac Ris	goo Als	csc His	Hìs	grt Val 1005	cat His	can Bis	ggą Gly	3024
en:	Fro	cat His 1010	Leu	gcg Ala	cac His	Arg	cac 818 1013	Acq	cac His	cac His	Axg	009 Arq 1020	Thr	atq Leu	tee Ser	led	3072
60	gac Asp 102	Aso	agg Arg	gac Asp	Se.:	gtg Val 1030	- గీతిపై	org Les	occ Ala	Gla	ctq Leo 1035	Val	gra	g¢g Ala	Val.	990 31y 1040	3120

	got cat not ogg for gor tog agg gog goa ggt opg got oor ggg cat Ala His Pro Arg Ala Ala Trp Arg Ala Ala Giy Pro Ala Pro Gly His 1045 1050 1055	31.68
\$.	ggy gao the mat ggo agg atg occ ago atc goo ass gao gto the acc Giu Asp Cys Asn Giy Arm Met Pro Ser lie Ala Lys Aso Val Phe Thr 1060 1065 1070	3216
10	and and goo can our egg out our egg gas gat gas say gas and gas Lya Met Cly Asp Ard Cly Asp Ard Cly Cla Asp Cla Cla Cla Ile Asp 1075 1080 1095	3284
75	tau acc cig tgo tto cgc gtc cgc asg atg atc gas gio tat asg ccc Tyr Thr Leu Cys Phe Arg Val Arg Lys Met Ils Asp Val Tyr Lys Pro 1090 1095 1100	3322
20	gac tgg tge gag gtc ege gaa gae tgg tet gtc tae etc tte tet eee Asp Trp Cya Siu Vai Arg Glu Asp Trp Ser Val Tyr Lee Pha Ser Pro 1105 1110 1115	3380
arves.	gag aac agg ttc cgg gtc ctg tgt cag acc atc att gcc cac aaa ctc Glu Asn Arg Phe Arg Val Leu Cya Glo Thr Ile Ile Ala 81s Lys Leu 1175 1130 1135	3408
25	tto bac tac gte gto etg god tto atd tit one aad tgo atd acc atd Phe Asp Tyr Val Val Leu Ale Phe Ile Phe Leu Asn Cys Ile Thr Ile 1140 1150	3436
30	god otg gag ogg oct dag ato gag god ggd agd acd gaa ogd ato tit Ala Leu Glu Arg Pro Gln Ile Glu Ala Gly Ser Thr Glu Arg Ile Pha 1155 1160 1165	3504
33	otr sec gtg too sec tac atc ttc acg gcc atc ttc gtg ggc gag atg Leu Thr Val Ser Asn Tyr Ile Phe Thr Ala Ile Phe Val Gly Glu Met 1170 1175 1180	3552
40	aca ttg aag gra gto tog stg ggo otg tac ttc ggc gag cag gog tac Thr Leu Lya Val Val Ser Leu Gly Leu Tyr Phe Gly Gio Gln Ala Tyr 1185 1196 1195 1700	3600
) same	ora ogo ago ago tgg aar gtg ctg gat ggo ttt ott gto tto gtg too Leu Arg Ser Ser Trp Asn Val Leu Asp Gly Phe Leu Val Phe Val Ser 1205 1210	3648
45	atc atc gac atc gtg gtg tcc ctg gcc tca gcc ggg gga gcc asg atc The The Aep The Val Val Ser Leu Ala Ser Ala Gly Gly Ala Lys Tie 1220 1225 1230	3696
30	ttg ggg gtd oto oga gro ttg ogg oto otg ogc acc ota ogc dos otg Leu Gly Val Leu Arg Val Leu Arg Leu Leu Arg Thr Leu Arg Pro Leu 1235 1240 1245	3744
3 3	ogt qtc atc agc cgg gcg ccg ggc ctg aag ctg gtg gtg gag aca ktc Arg Val Ile Ser Arg Ala Pro Gly Leu Lys Leu Val Val Glu Thr Leu 1250 1255 1260	3792
80	ato too too oto awy too ato ggo amo ato gro oto ato tgo tgt goo The Ser Ser Leu Lys Pro The Ghy Amn The Val Leu The Cys Cys Aim 1265 1270 1275 1280	3840
our tight	tto tto ato ato trr ggs ato org gga gtg dag oto fto sag ggs 889 Pha Phe Ile Ile Phe Gly Ile Leu Gly Val Gln Leu Phe Lys Gly Lys 1285 1290 1295	3838

	the two case tot one god god gap abouge sad at Phe Typ Sia Cys Leu Gly Val Asp The Ary Ash It 1300 1305	c act was type tog 39. * The Asm Arg Set 1910	36
S.	yac tgc atg god god aan fab bgc bgg gbc dat da Asp Cys Met Ala Ala Ash Typ Arg Trp Val His Hi 1315 1320	c ale ter eer tit 39% s Lys Tyr Asn Phe 1323	
10.	gas aas sty ggs say gst sty ary too obs tib gt Asy Asn Leu Gly Gln Ala Leu Met Ser Leu Phe Va 1330 134	l Let Ala Ser Lys	32
15	gar ggr tgg gtg aac att atg tac aat gga cig ga Asp Giy Trp Val Asn Ile Mer Tyr Asn Gly Leo As 1345 1350 1355	t got got got gtg 400 p Ala Val Ala Val 1360	30
20	gat can can cot gry act ear can san och tyg at Asp Gln Gln Pro Val Thr Asn His Asn Pro Trp Me 1365 1370		28
e weeks	ato too too otg one ato gto ago the tht gig of Ile Ser Phe Leu Leu lie Val Ser Phe Phe Val Le 1380 :385	c ass stq ttt gtg 41 u Asn Met Phe Val 1390	7,6°
35	ggt gto gtg gtg gag aso the cac asy tgc cyc ca Gly Val Val Val Slu Aso Phe His Lys Cys Arg Gl 1395 1400	g cac cag gag yet 42: n His Gin Glu Ala 1405	24
30	gaa gag gca ogg ogg ogt gag gag aag ogg otg og Glu Glu Ala Arg Arg Arg Glu Glu Lya Arg Leu Ar 1410 1415 142	g Arg Leu Giu Lys	12
33	asg ogo ogg aag geo oag ogg otg ooc tac tat go Lys Arg Arg Lys Ala Gln Arg Leu Pro Tyr Tyr Al 1425 - 1430 - 1435	c acc tat tot cac 43 a The Tyr Cys His 1440	20
40	and egg ong one and can her and igo acc ago ca The Arg Leu Leu lie His Son Met Cys The Son Hi 1445 1450	c tac org gas atc 43 a Tyr Leu Asp Ile 1455	68
alsk.	tto ato see the ato ato tgo etc ase gtg gto ac Phe Ile Thr Phe Ile Ile Cys Leu Asn Val Val Th 1460 1465	c aty tee etg gag 44 ir Met Sex Lau Glu 1470	1.8
45	cac tec eat cag ccc acg tec ctg gag aca gcc ct His Tyr Asm Gln Pro Thr Ser Leu Glu Thr Ala La 1475	c aag tac tgc aac 44 w Lys Tyr Cys Asn 1485	64
50	tat and the ace act give the gig one gag got gi Tyr Mer Phe Thr Thr Val Phe Val Leu Glu Ala Va 1490 1495 156	d Leu Lys Leu Yal	ો હે
<i>35</i> ::	gos tit ggt otg agg ogg tia tid aag gad oga tç Ala Phe Gly Leu Arg Arg Leu Phe Lys Asp Arg Tr 1505 1510	ig war cag ctg gec 45 p Asn Glo Leu Asp 1520	60
20	ctg god att gtg cta ctg toa gtc atg ggc atc ac Leu Ala Ile Val Leu Leu Ser Val Met Gly lle Th 1525	to ong gag gag ato 46 to Leu Glu Glu Ile 1535	08
60	, gag are eat geg ger sty see etc eet eec et Glu Ile Asn Ala Ala Leu Pro Ile Asn Pro Thr Il 1540 - 1545	in ato ogo ato atg - 46 We lie Arg lie Met 1550	56

	agg gtt org ogc att god oga gtt org aag stg tig sag atg god soa Arg Val Leu Arg Ila Ala Arg Val Leu bys Leu Leu lya Mer Ala Tor 1885 - 1880 - 1885	4704
ği I	yga atg con god otg org god acg gog gog god tag col cag god Gly Mer Arg Ala Leu Leu Asp The Val Val Gin Ala Leu Poc Glo Val 1570 1575 1580	#75Z
10	ggo eec ctg ggo ctc stc ktc alg stg ctc ttc ttc atc tak gtt gct Gly Asn Leu Gly Leu Leu Phe Met Leu Leu Phe Phe Ile Tyr Ala Ala 1385 1590 1590	4800
15	etc qqq gtq qaq ctc ttt qqq asq ctq qtc tqc sac qaq asc ccq Leu Giy Val Glo Leu Phe Gly Lys Leu Vai Cys Asn Asp Glu Ash Pro 1605 1610 1815	4848
20	rgn gag ggo atg ago egg cat gco ach the gag aac the ggo atg gco Cys Glu Gly Met Ser Arg Ris Ala Thr Phs Glu Asn Phs Gly Met Ala 1620 1625 1630	4896
: :	tto ote aca ote nto cap goo too ace got gas aas tgg sac ggg ato Pha Len Thr Leu Phe Gin Val Ser Thr Gly Asp Asn Trp Ash Gly Ile 1635 1640 1643	4944
23	atg aag gac acg etg egg gac tgc acc cac gac gag egc age tgc etg Met Lys Asp Thr Leu Arg Aap Cya The His Asp Glu Arg Ser Cya Leu 1650 1655 1660	4992
30	ago ago ong cay the gra tog ong the lac the etg ago the gra one Ser Ser Leu Gln She Val Ser Pro Leu Tyr She Val Ser She Val Leu 1865 - 1870 - 1875 - 1880	3040
35	acc gcg cag tto gtg etc atc aac gtg gtg gtg gct gtg ctc atg aag Thr Ala Gin Phe Val Leu Ile Asn Val Val Val Ala Val Leu Met Lys 1685 1690 1695	5098
40	car org gao gao ago aar aag gag gog cag gag gao goo gag atg gar His Leu Asp Asp Ser Asn Lya Glu Ala Glo Glu Asp Ala Glu Met Asp 1700 1705 1716	5136
	god gag oto gag org gag atg god dat ggd otg ggd oot ggd oog agg Ala Glu Leu Glu Leu Glu Met Ala His Gly Leu Gly Pro Gly Pro Arg 1715 1720 1725	5184
43	org cet ace get tee seg gge see cet gge ega ggg eeg ggs ggg geg Leu Pro Thr Gly Ser Pro Gly Ala Pro Gly Arg Gly Pro Gly Gly Ala 1730 1735 1740	5232
30	gge gge ggg gge gae ace gat gge gge ttg tge egg ege tge tae teg Gly Gly Gly Gly Asp Thr Asp Gly Gly Leu Cys Arg Arg Cys Tyr Ser 1745 1750 1755	5280
33	out god dag gag aad dig tyg otg gad agd gtd tot the and and Pro Ala Gin Glo Aso Leo Trp Leo Asp Ser Val Ser Leo Ile Ile Lys 1765 1770 1775	5328
60	gac too tig gag ggg gag big acc atc atc gat aac cig tog ggc too Asp Ser Leu Glu Gly Glu Leu Thr Ile Ile Asp Asn Leu Ser Gly Ser 1780 1785 1790	5376
~ 100 pg	ato the eac cae tac too too oor goo ggo tgo aag eag tgo cac cac Ile Phe His His Tyr Ser Ser Pro Ale Gly Cys Lys Lys Cys His His 1795 1800 1805	5424

	gac as Ast Ly Tal	s Sla			(2.7 X					Cys						546%
ğ	<210× <211× <212×	5505														
10	<2213> <2220>	Bettu CDS														
13	<400% 4400% <222%	12 t gac	ತ್ತಾರ	880	tta Leu	çeş Pro	ecc Pcc	200 860	tot Ser	qca Ala	qca Ala	gco Rla	223 810	gcc Ala 15	cat Pro	48
20	gag co Glu Pr	e Gly G ggs	atc Ile 20	act Thr	gaç Glu	cag Gln	\$20 ccd	999 Gly 28	000	yzd caa	agt Ser	Szd	sst Pro 30	ದರತ	Ser	98
25	oot ca Ero Ex	a ggc o Giy 35	ctq Lea	gag Slu	gag Siu	00a 270	ttg Leu 40	gaa Glu	ggs	acc Thr	aac Asn	cot Pro 45	gac Asp	gtc Yal	Pro OCS	I.4.4
30	car co Sis Vi	a gac o Asp io	otg Leu	gct Ala	sst Bro	gtt Val SS	got Ala	tto	ttc Phe	tgc Cys	etg Leu 60	ege Arg	cag Gln	acc Thr	acq Thr	1,92
33	age or Ser Pr 65	oa ogg o Arg	aac Asn	tgg Trp	tgc Cys 70	etc Ila	aag Lys	atg Met	gtt Val	tgt Cys 75	aac Asn	5to ccd	tag Trp	ttc Phe	80 Giu gag	240
we will	tat gt Cys Va	g ags Ll Ser	arg Met	org Lea 85	gil Val	ait Sil	otg Leu	ctg Leu	aac Asn 90	tgt Cys	gtg Val	acc Thr	Leo Leo	ggs Sly 95	atg Met	288
40	tac ce Tyr G)	ig CCa in Pro	tgt Cys 100	gat Asp	gac Asp	atq Met	Glu	tgc Cys 105	etg Leu	teg Ser	gac Asp	cgt Arg	tgc Cys 110	$p\lambda x$	atc Ile	336
45	cty c	ig gto In Val 115	ttc Phe	get Asp	gac Asp	ttc Phe	atc lle 120	ttc Phe	atc Tle	ttc Phe	ttt Phe	gcc Ala 125	arg Met	gag Glu	atg Met	384
30	gto co Val Lo 1	it aaq su Lys 30	atg Met	Val Oto	goo Ala	ctg Leu 135	ggc Gly	att Ii*	ttt Phe	ggc Gly	aag Lys 140	aaq Lys	tqc Cya	tac Tyr	ctc Leu	432
ĴĴ	gga g: Gly A: 145															480
	gtt g: Val 6	ng tac lu Tyr	tot Ser	ctg Leu 165	gac Asp	cta Leu	Cag	aac Asn	atc lle 170	aac Asn	ctg Leu	tca Ser	goo Ala	atc Ile 175	yvá các	\$28
60	Tho V	tg ogt al Arg	gtc Val 180	Leu	agg Arg	520 002	Leu	aaa Lys 185	gcc Ala	ato	aac Asn	ogr Arg	gta Val 190	820	ser	3.4
	azg c	gg ato	ctq	gtg	830	atg	ರಸ್ವ	ದಿಕೆದ	gac	acç	atg	222	atq	etg	993	624

	Met	Āīg	Ile 198	Leu	Yal	Aso	ù⊕U	Let 200	Leu	Asp	Thr	Leu	9 x 0 303	Met	Leu	giy	
- D	aac Asn	yai Yai gtg	ot: Leb	ZTQ Leu	ztc Lsu	cys cys	ttc Phe 215	ttc Phe	gtc Val	ttc Phe	tto Pha	ato 11a 220	titic Pha	ĞÎγ	sto Ile	att Ile	672
10	990 Gly 223	gtg Val	cag Gin	ats Les	taa Tre	gca Ala 230	gjy Gly	ctq Leu	sta Leu	ogg Arg	880 Asn 235	ogo Arg	tgc Cys	ttc Pho	ctg leu	988 Glu 240	780
	gag Glu	aac Asn	ttc The	acc Thr	ata Ile 245	caa Gin	eiy	gat Asp	ata Val	gsc 81a 280	otg Læd	820 820	920 902	tat Tyr	tac Tyr 255	caa Gls	758
13	eca Pro	gay Glu	gag Glu	gat Asp 260	gac Asp	gag Glu	atg Met	5to ccc	ttt Phe Z6S	atc Ile	igu Cys	tot Set	ciq Leu	act Thr 270	era aaa	gac Asp	816
20	aat Asn	gge Gly	atc Ile 275	atq Met	gga Gly	cya	cec His	949 Glu 280	atc 11e	ccc Pro	cca Pro	ctg Læu	sag Lys 285	gag Slu	Cag Gln	eīā āāc	864
25	ogg Arg	gaa Giu 290	tgc Cys	tge Cys	ctg Leu	tet Ser	aaa Lys 295	gat Asp	gat Asp	geg Vai	tat Tyr	gac Asp 300	rco	ggg	gog Ala	età aaa	912
30	cgc Arg 305	caq Gln	gac Asp	crc Leu	aac Asn	gcc Ala 310	agc Ser	ggt Gly	ctg Leu	tga Cya	gto Val 315	aac Asn	tag Trp	aac Aso	arg Arg	tac Tyr 320	960
9.8	tac Tyr	aac Asn	gtc Val	tgc Cys	cgc Arg 325	acg Thr	era aac	aac Aan	gcc Ala	aac Asn 330	act Pro	cac Hiz	aag Lys	ggc	gco Ala 335	atc Ile	1008
35	aac Asn	ttt Phe	gac Asp	aac Asn 340	att Ile	Gi.y	tat Tyr	gcc Ala	999 Gly 345	att Ile	val Gra	att Ile	rtc Phe	cag Gln 350	gtg Val	ats Ile	1056
40)	act	ctg Leu	gaa Glu 355	333	tgg Trp	gtg Val	gag Glu	atc Tle 360	39W	tac Tyr	tat Tyr	gtq Val	atg Met 365	gac Asp	gcæ Rla	cat His	1104
45	tet Ser	ttc Phe 370	Tyr	aac Asn	ttc Phe	atc Ile	tac Tyr 375	ttc Phe	att	ctq	one Leu	atc Ile 380	ata Ile	gtg Val	GIA Bac	toc Ser	1182
50	ttc Phe 385	ttc Phe	azg Met	ætc Ile	aac Asn	ttq Leu 390	tgc Cys	ctc	gtt Val	gtc Val	ata Ile 395	Ala	acc Thi	caq Gln	ttc Phe	tet Ser 400	1200
्रक्षक	gag Glu	acc	aaq Lys	caa Gin	099 Arg 405	Glu	cac His	egg Arg	ctg Led	atg Met 410	Læu	gaq Glu	cas Gin	ogc Arg	089 51n 415	Arg	1249
\$5	tac Tyr	org	tee Sar	tcc Sar 420	267	acq Thr	gtg Val	gec	agr Ser 428	Tyr	got Ala	gaq Glu	cce Pro	ggt Gly 430	gat Asp	tgc Cys	1296
60	tat Tyx	gag Glu	gag Giu 433	lle	tto Phe	caa Gin	tat Tyr	gtc Val 440	tgt Cys	cac 81s	atc Ile	art Leu	ara ara aga	Lys	goo Ala	aaq Lys	1344
	cgc	cgt	god	cta	990	bro	- bac	cag	gae	ctg	cag	&&C	càà	ağç	cag	gcz	1392

		Arg 450	Ala	Logia	Giy.	1.81	Tyr 455	Gla	Ala	Leu	gin	Asc 460	£17	Arg	Gln	Ria	
Š	atg Mat 165	grà aac	edg Pro	614 888	eca Thr	258 950 470	goo Ala	ect Pro	gcc Ala	aag Lys	ett 975 475	01 X 833	nan Pac	cat His	gac Ala	aag Lys 460	1440
10	Glu	000 P20	390 Ser	cac His	:gc (ye 485	aag Lya	ong Leu	tgc Cys	00a 800	oga Arg 490	Cec His	ago Sez	220	ata Lea	gac Asp 495	ece Pro	1 * 8 9
197,4401	act The	aaa Pro	cac His	aca Thr 500	ctq Leu	gtg Vel	caq Sin	eee Fro	acc Ile 505	tot Ser	gcc Ala	att Ilæ	cij Læû	gcc Ala 510	tet Sar	980 Asp	1535
13	occ Pro	aşc Ser	agc Ser 515	tgc Çys	oot Pro	car Als	tyc Cys	caq 61n 520	cac 81s	gag Glu	gca Ala	ggc Gly	agg Arg 825	cgo Arg	occ Pro	tet Ser	1584
20	ggc Gly	otg Leu 530	GJA GGC	agç Ser	act The	gac Asp	500 Ser 535	ggc Gly	Caq	gaa Glo	ggc Sly	tca Ser 540	ggt Gly	tot Ser	ggt Gly	61y ggc	1632
25	tet Ser 545	gca Ala	gag Glu	gov Ala	gaa Glo	occ Ala 550	aat Aso	01A 333	gat qeA	gga Gly	ore Leu 555	cag Gin	ego Ser	agt Ser	gag Glu	gat Asp 560	1680
30	ggg Gly	gtc Val	ger	tog Ser	gac Asp 365	ctq Leu	era aaa	aag Lys	gag Glu	gag 31u 570	gaa Glu	cag Gln	gag Slu	gac Asp	999 Gly 575	gca Ala	1728
× × ·	gcc Ala	cga Arg	ctg Lea	tgt Cys 580	gly aga	gat Asp	gtq Val	tgq Trp	cgc Arg 585	gaç Glu	aca The	cga Arg	aaa Lys	aag Lys 590	ctg Leu	cgg	3776
Ŋ	ggc Gly	abc lia	gtg Val \$95		agc Ser	aag Lys	tac Tyr	ttc Phe 600	asc Asn	aga Arg	ggt Gly	ato	atg Met 808	atg Met	got Ala	arc Ile	1824
40	ctg Læu	gtg Val 610	ABR	aca Thr	gtc Val	açç Ser	atq Met 615	Gly	atc Ile	gag Slu	cac	cac His 620	Glu	cag Gin	pro	gag Glu	1872
4.5	gag Glu 625	ctg Leu	acc Thr	asc Asn	atc Ile	otg 100 630	Glu	atc Ila	tgc Cys	aat Asn	gtg Val 635	Va.	tts	Thr	agt Ser	atq Met 640	1920
30	ttt Phe	gsc Ala	ctq Leu	gag Glu	atg Met 645	118	otç Lev	aaa Lys	otg Læu	gcc Ala 650	Ala	ttt Phe	grà aaa	ctc Leu	ttc Phe 655	gac Asp	1968
ille ei ^{rr}	tec Tyr	otg Leu	cgg Arg	aac Asn 660	Pro	tac Tyr	aac Asc	atc Tle	ere Phe 665	Asp	ago Ser	att Ile	ato Ile	gto Val 670	Tie	atc 11e	2016
33	agc 5ær	atc Ile	tgg Trp 675	Glu	atc	gtg Val	Gly Gly	cag Gln 680	Ala	gac Asp	Gly Gg¢	oly adc	ctq Leu 685	582	gtg Val	org Les	2064
60	cąc	acc Thr 690	She	cgg Arg	ttç Leu	ಭಾಷ ಬಕ್ಕಾತಿ :	cgc Arc 893	, val	Ctg Leu	aag Lys	rec czę	gtg Val 700	Axq	tte She	çte: JeM	osa Pro	2112
	geg	ong	r egç	j ege	r caç		gre	i dich	cto	atq	(3.3£ %	: ಕಲ	ary	gac	880	g grg	2160

	Ala 705	Leit	Arg	Arg	915	1:00 710	Val	387	Leo	88°	Lys 715	Thi	Net	Asp	Asn	Vai 720	
3	gaa Als	aca Tar	nto Phe	tgc Cys	atq Met 725	cta Leu	etc Lau	eco	org Leu	eto Phe 730	acc Tie	tro She	#55 714	tto Phe	ago Ser 735	atc lle	2209
10	pan str	ggg Gly	abg Met	cat His 740	ato Ile	ttt Fhe	ggo	ogo Cys	aaa Lys 745	ecc Phe	agc Ser	sto Leu	ege Arg	acq Thr 750	gac Asp	acg Thr	2285
13					oct Pro												2301
A ST					ttc Phø												2382
20	ctq Leu 785	tac Tys	aat Asn	ggc	atg Met	gcc Ala 790	roc Ser	acc The	#CC Thr	ccc Fro	tag Trp 195	gec Ala	tec Sar	ctc leu	tat Tyr	ttt Fne 800	2400
25	yal gtt	gcc Ala	oto Leu	atg Met	act Thr 805	ttt Pho	G1¥	aac Asn	tac Tyz	grt Väl 810	epo Leu	the	ast Asn	etc Leb	ctg Leo 815	gtg Val	2448
30	gct Ala	atc Ile	ctg Leu	gta Vai 820	939 G19	ggt Gly	ttc Phe	ceş Gin	got Ala 825	gag Glu	ggt Gly	gat Asp	got Ala	aat Asn 830	arg Arg	toc	7486
38	tgc Cys	tot Sec	yat Asp 835	gag Glu	gac Asp	cag Gln	agc Ser	008 Ser 840	toc Ser	aat Asn	ttg Leu	gaç Glu	gaq Glu 845	ttt Pho	gac Asp	aag Lys	2544
. Or Ch.	ctc	cca Pro 850	gaş Glu	gge Gly	ctg Leu	gat Asp	aac Asn 855	agt Ser	aga Arg	gat Asp	Leu	aag Lys 860	crc Leu	tgc Cys	oca Pro	ata Ile	2592
40	000 Pro 865	atg Met	acs Thr	ooc Pro	aat Aso	998 Gly 870	cac His	ctg Læu	gac Asp	oct Pro	agc Ser 875	ctc	pro	ctg Leu	Gly	gog Ala 880	2640
43	cat Ris	otg Leu	ggt	ect Pro	gct Ala 885	ggt Gly	acc Thr	atg Met	ggt Gly	act The 890	gcc Alæ	occ Pro	ogc	oto Leu	tca Ser 895	ctg Leu	2688
50	caq Gla	cca Pro	gac Asp	209 Pro 900	gta Vai	Lea	gtg Val	gcc Ala	cta Leu 905	gac Asp	rat Ser	agg Arg	aaa Lys	ægc Ser 910	Ser	gtc Val	2736
55	atq Met	tec Ser	ctg Leu 915	Gly	agg Arg	atq Met	agc Ser	tat Tyr 920	gat Asp	cag Gin	oga Arg	toc Ser	ttg Leo 925	tee See	agc Ser	toc Ser	2784
	ogq Arg	agc 930	Sex	tac Tyr	tac Tyr	ggg Gly	000 810 935	tgg	egc Gly	cgc Arg	ægt Ser	940 940	acc Thr	tgg Trp	gct Ala	agc Ser	2832
60		Arg			tgg Trp												2890
	cat	gag	toc	ppa	erg	tot	āāā	gag	ggt	gga	ggr	ಷಭ೦	ಕ್ಷಣ	gto	agg	gcc	2928

	Wis Gla Se	r Leu Leu 888	ser GDy	Glu Gly	G1y G1y 970	Des Cya	Val Arg 975	Ala
Ď	tgt gaa gg Cya Slo Gi	y Ala Arg c get rgg	Giu Gia Gag gag	gog coa Ala Pio 985	ant and	ecc year The Ala	ecc stg Pro Leu 990	cat 2976 His
10	got cos os Als Fro Hi 99	s Ala Mis	His Ala	dac bat His His 1000	ega pod Gly Pro	ces sty His Les 1993	gca cac Ala Bis	egt 3024 Acq
1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.	cac cga ca His Arq Wi 1010	c cac ogc s His Arg	cgg act Arg Thr 1015	org tot Leu Sat	Lau Asp	acc agg Thr Arg 1020	gac tot Asp Ser	get 3072 Val
	gac ctq qq Asp Leb Gl 1025	y Glu Leo	gtg ccc Vai Pro 1030	grg gtg Val Val	ggt gct Gly Ala 1035	cac tca Wis Ser	Arg Ala	gct 3120 Ala 040
20	tgg agg gg	y Ala Gly 1945 1945	Gln Ala	Pro Gly	cac gag Nis Glo 1050	gac tgc Asp Cys	aat ggc Asn Gly 1055	aga 3168 Arg
25	atq coc as Met Fro As	oc ata got m Ile Ala 1060	aag gat Lys Asp	gts tic Val Phe 1065	acc seq Thr Lys	Met Asp	gac ogc Asp Arg 1870	ogo 3716 Arg
30	gac tgt gt Asp Arg Gl 107	ly Glu Asp	Glu Glu	geg etc Glu Ile 1080	gac tat Asp Tyr	acc ctg The Leu 1085	tgt ttc Cys Phe	ogg 3264 Arg
33	gto ogo as Val Arg Ly 1990	og atg att /s Met Ile	gat gtg Asp Vai 1095	Tyr Lys	fro Asp	tgg tgc Trp Cys 1100	gae gtc Glu Val	oge 3312 Arg
.	gag gac to Glu Asp Tr 1105	og bog gto p Ser Vel	tec ctc Tyr Leu 1110	tto too Phe Ser	ccc gag Pro Glu 1115	aac aag Aan Lys	Phe Arq	atc 3360 Ile 120
40	ctg tgt ca Leu Cys G	eg acc atc in Thr Ils 1125	Ila Ala	His Lys	ctt ttt Leu Phe 1130	gac tac Asp Tyr	gtq gtc Val Val 1135	ttg 3408 Leu
45	gcc ttt at Ala Phe Il	o tto oto le Phe Leu 1140	aac tgt Asn Cys	atc acc Tie Thr liss	att gct Ile Ala	Leu Glu	aga occ Arg Pro 1150	cag 3455 Gln
30	att gea go lle Glu Al il:	la Gly Ser	act gag Thr Glu	cgc atc Arg Ila 1160	tto cto Phe Leu	acq gtg Thi Val 1165	tot aac Ser Asn	tar 3504 Tyr
	ato tto as Tie Phe T! 1170	ta got att ur Ala Ils	tto gtg Phe Val 1175	Gly Glu	Met Thr	ctg mag Leu bys 1180	gtg gtt Val Val	tot 3552 Ser
33	ctg ggc c Les Sly L 1185	eu Tyr Phe	ggt gag Gly Gls 1190	cag gcg Gln Ala	tac ctq Tyr Lea 1195	ogt ago Arg Ser	Ser Trp	aat 3600 Asn 200
60	gta ctg ç Val Leu A	at got tto sp Gly Phe 1209	. Leu Val	. Phe Val	too sto Ser lle 1210	sto gat lle Asp	atc gta Tie Val 1215	oto 3648 Vel
	roc grg g	ii tet gu!	୍ରପ୍ରପ୍ତ ପ୍ରସ୍ତ	goc asg	act ong	ggg ste	200 2000	grd 3696

	Sec val Ala Sec Ala Gly Gly Ala Lys Ile Leu Gly Val Leu Ary Val 1220 1225 1230	
\$ 3 . \$	ong ogg out ong ogt aco tha ogt tot tig agg git and agg ogg god Leu Arg Law Arg Thr Leu Arg Pro Leu Arg Val Ila Sar Arg Ala 1235 1240 1245	3788
10	est ggg sig way eng gig giw yay acy sic ato too too oir aag coo Pro Gly Leu Lys Leu Val Val Glu Thr Leu Ile Ser Ser Leu Lys Vro 1850 1255 1260	3792
80	att 999 ase atc 910 etc atc t90 t9t 900 ttc ttc atc atc 510 990 The Shy Ash The Val Leu lie Cys Cys Ala Phe Phe The The Phe Shy 1265 1270 1275	3840
13	ato otg ggg gtg cag ott tto asa ggp aag tto tac cat tgt ttg gga Ile Leu Gly Val Glm Leu Phe Lys Gly Lyx Phe Tyr Ris Cys Leu Gly 1288 1290 1295	3888
20	gig gad arr ega aad aid add aad ega tol gad igo gig gog aad Val Asp Thr Arg Ash lla Thr Ash Arg Sar Asp Cys Val Ala Ala Ash 1306 1308 1310	3936
25	tac non tgg gtg eat cac eas tec eac tit gan aac otg ggc cag gCa Tyr Arg Trp Val His His Lys Tyr Asn Phe Asp Asn Leu Gly Gln Ala 1315 1320 1325	3984
30	ttg atg tee ete tit gie tig get toe aag gas gge tgg gig aac atc Leu Met Ser Leu Phe Val Leu Ala Ser Lys Asp Gly Trp Val Asn Ile 1330 1340	4032
35	atg tar sat ggs tts gat got gtt got gtg gac cag cag cca gtg acg Met Tyr Asn Gly Leu Asp Ala Val Ala Val Asp Gin Gin Pro Val Thr 1345 1350 1360	\$080
******	aac tac aac eer tgg abg ela ebg tac tto att teg tte etg etc abc Asn His Asc Pro Trp Met Leu Leu Tyr Phe Ile Sex Phe Leu Leu Ile 1365 1370 1375	\$128 -
40	gto ago the tit gig etc aac atg tit gig ggo gig gic gig gag aac Val Ser Phe Phe Val Leu Asn Met Phe Val Gly Val Val Val Glu Asn 1380 1386 1390	4176
43	tto car and tgc ogg cag car cag gag got gag gag gog ogg ngg ogt Phe Him Lym Cym Arg Gln Him Gln Glu Ala Glu Glu Ala Arg Arg Arg 1395 1400 1405	8228
<i>50</i>	gag gag ass egg etg egg egt etg gas asg asg egt egt sag get eag Glu Glu Lys Arg Leu Arg Arg Leu Glu Lys Lys Arg Arg Lys Ala Glu 1410	4272
33	agy ong mod tac tat got ach had the occ ack agy ong one atc dan Ang Leu Pro Tyr Tyr Ala Thr Tyr Cys Bro Thr Ang Leu Leu Ile Bis 1425 - 1430 - 1435 - 1440	4320
in the second	ton sty type acc ago can tan one gan allo the att acc the atc atc Ser Met Cys Thr Ser His Tyr Leu Asp Ile Phe Ile Thr Phe Ile 1445	4368
60	tgo oto eat gtt gto soc etg too otg geg can ten een ceg cot en Cys Leu Asn Val Val Thr Met Ber Leu Glu His Tyr Asn Gin Pro Thr 1460 1485 1470	4416
	too ota gag aca goo ott aag tar too aac tac atg tto acc act giv	4464

	Ser Leu Glu Thr Ala Leu Lys Tyr Cys Asn Tyr Mos Pos Thr Thr Val 1475 1480 1885	
3	ttt grg erg gag got grg org aag trg grg gra ett ggt org agg cgr Phe Val Lee Glu Ala Val Leu Lys Lau Val Ala Pha Gly Leu Arg Arg 1490 1495 1300	4832
10	tto tto mag gan ogs tgg eac cag cly gat ctg gct att grg ctg ctg Phe Phe Lys Asp Arg Trp Asn Gin Lau Asp Lau Ala Tie Val Lau Lau 1505 1510 1520	456 0
. 5 35°	too gto atg ggm asc aca otg gag gag atc gag atc aat gcc gcc ttl Ser Val Met Sly Ile Tor Leu Giv Sin Ile Sin Ile Aso Ala Ala Leu 1823 1530 1535	4608
15	oco etc aac occ acc acc atc oct atc atg oct gtt otg oct atc gov Pro lie Asn Pro Thr lie lie Arg lie Met Arg Vai Leu Arg lie Als 1540 1545 1550	4656
20	cgg gtg ttg meg ttm ttg mag mrg gon mom ggm mig tgg got otg ctg Arg Val Leu Lys Leu Leu Lys Mmt Alm Thr Gly Met Arg Alm Leu Leu 1555 1560 1565	4704
25	gac aca grg gra cag got otg too cag gtg ggc aac otg ggc otg tro Asp Thr Val Val Gin Ala Leu Pro Gin Val Gly Asn Leu Gly Leu Leu 1570 1575	4752
30	tto and one one the tree and tal gol got one gya gig gag one tro The Met Leu Leu Phe The Ile Tyr Ala Ala Leu Gly Val Glu Leu Phe 1585 1590 1595 1600	4800
33	gga aag org gro tyc aat gad gag aad cog tgt gag ggo aig ago ogg Gly Lys Leu Val Cys Asn Asp Glu Asn Bro Cys Glu Gly Mer Ser Arg 1605 1810 1815	4848
a vagavag	cac god acc ttt gam mad the gge and god tto etc acg etc tte cag His Alm Thr Phe Glu Asn Fhe Gly Met Alm Phe Leu Thr Leu Phe Gin 1620 1625 1630	4998
40	gtd too ace ggc gat sac tgg aar gga arr atg aag gac acc ctg cgs Val Ser Thr Gly Asp Asn Trp Asn Gly Ile Met Lys Asp Thr Leu Arg 1635 1640 1645	4944 ·
45	gac tgt acc car gat gag cgc acg tgc cta agc agc ctg cag ttt gtg Asp Cys Thr His Asp Glu Arg Thr Cys Leu Ser Ser Leu Gin Phe Val 1650 1655 1660	4992
50	tos cog etc tar tit gig ago tro gig otc ace got cag tit gig otc Ser Pro Leu Tyr Phe Val Ser Phe Val Leu Thr Ala Glo Phe Val Leu 1865 1670 1675 1680	5040
33	atc sac grg grg gcc grg rrg arg saa car crg gst gac agc aar Tle Asn Val Val Val Ala Val Leu Met Lys His Leu Asp Asp Ser Asn 1685 1690 1695	\$089
**************************************	aag gag goo dag gat goa gag arg gar got gag ato gag otg gag Lys Glu Ala Gin Glu Asp Ala Glu Met Asp Ala Glu Ile Glu Leu Glu 1700 1705 1710	5136
60	atg goo cat ggs one ggo occ tgc cot ggo ccc tgc cot ggt ccc tqc Met Ala His Gly Leu Gly Pro Cys Pro Gly Pro Cys Pro Cly Pro Cys 1715 1720 1725	5184
	dec the can the can the and the det det dee edd oud end can wer was	\$232

	Pro Cys Pro Cys Pro Cys Pro Cys Ala Gly Pro Arg Leu Pro The Sec 1730 1735 1740	
	tca cct 397 get eeg ggg ega gga teg gga ggg gea 997 get gga ggt Ser Pro Gly Ala Pro Gly Arg Gly Ser Gly Gly Ala Gly Ala Gly Gly 1745 1756 1755	\$280
10	gac acc gag agt cac ctg tgc cgg cac tgc tat tot cts gcc cag gag Asp Thr Glu Ser His Leu Cys Arg His Cys Tyr Ser Pro Ala Gln Glu 1765 1770 1770	5328
	acc ctg tgg ctg gac ago gto tor tta atc atc aag gad too ttg gag Thr Leb Tro Leb Asp Ser Val Ser Leb Ite Ite Lys Asp Ser Leb Glu 1780 1785 1790	5376
73	ggg gag ctg acc atc att gad and ctg ref ggg toc gtc ttc eac CaC Gly Glu Leu Thr Île Île Asp Aso Lau Ser Gly Ser Val Phe Rix Mix 1793 1800 1805	5424
20	tac god toa oot gad ggd tgt ggd aag tgt dad dat gad aag daa gag Tyr Ala Ser Pro Asp Gly Cys Gly Lys Cys His His Asp Lys Gin Glu 1810 1820	5472
25	aca ggt ctt car cca tcc tgc tgg ggg atg acc Thr Gly Leu Ris Pro Ser Cys Trp Gly Met Thr 1825 1830 1835	5505
30	<210> 13 <211> 19 <212> PRT <213> Homo sapiens	
1: 33	<400> 13 Ile Arg Tie Met Arg Val Leu Arg Ile Ala Arg Val Leu Lys Leu Leu 1 5 10 15	
40	Lys Net Ala	

INTERNATIONAL SEARCH REPORT

Intern (a) Application No PCT/US 98/23161

CLASSIFICATION OF SUBJECT MATTER C 6 C12N15/12 C07K IPC 6 C07K14/705 C07K16/28 C12N5/10 G01N33/68 According to International Patent Classification (IPC) or to born national dissertication and IPC Minimum documentation searched (classification system followed by classification symbols) C07K 1PC 6 Decumentation resigned other than minimum decumentation to the except that such decliments are included in the listids searched Electronic data base consulted during the international search (name of data base and, where practical search terms used) C. DOCUMENTS CONSIDERED TO BE RELEVANT Category * Challon of document, with indication, where appropriate, of the relevant passages Relevant to claim No. X WO 95 04144 A (NEUREX CORP) 1.2.7. 9 February 1995 10-18. 20-22 ٧ see abstract; claims 1-10 3.19 X NOONEY JM (REPRINT) ET AL: "Identifying 1,2, 10-16. neuronal non-L Ca2+ channels - more than stamp collecting?" 20-22 TRENDS IN PHARMACOLOGICAL SCIENCES. 10-1997, 18, 363-371, XP002093637 see page 369, right-hand column - page 370, right-hand column X Further documents are listed in the continuation of box C. χ Patent family members are listed in annex. Special careconies of ofed documents: "T" later document published after the international fling data or priorite date and not in conflict with the application by "A" document defining the general state of the lart which is not cled to understand the principle or theory, underlying the considered to be of particular relevance กระสบอก "E" sarrier document but published on or after the international "X" document of particular relevance, this claimed invention tions date papers he considered have at cannot he considered to "It" document which may throw doubts on priority, claim(s) or which is cited to establish the publication dide of another. involve an invention step when the ribourners is taken alone. "V" document of particular relevance, the claimed invention citation or other special reason (as 'specified) cannot be considered to involve an inventive, step when the document is combined with one or more other, such docu-"O" document referring to an oral disclosure, use, exhibition or mente, such combination being obvious to a person skilled *** document sublished onor to the international filing date our later than the priority date claimed "&" document member of the same patent tamely Date of the actual completion of the international search Date of mesking of the informational search report 16 February 1999 09/03/1999 Authorized officer Name and making address of the ISA European Patent Office, P.S. 5616 Patentiaen 3 Nt. - 2280 HV Plipwik Tel. (+31-70) 340-2040, Tx, 31-651 epo ni, Fax: (+31-70) 340-3016 Gurdjian, D

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